

Suspension

**GROUP
14**

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PART 14-01 General Suspension Service

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
CASTER AND CAMBER ADJUSTMENTS		01-03	01-03	01-03	01-03	01-03	01-03	01-03	01-03	01-03	01-03	01-03	01-03
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A page number indicates that the item is for the vehicle(s) listed at the head of the column.

N/A indicates that the item is not applicable to the vehicle(s) listed.

1 TESTING

FRONT WHEEL ALIGNMENT CHECKS

Do not attempt to check and adjust front wheel alignment without first making a preliminary inspection of the front-end parts. Refer to Section 3.

Check all the factors of front wheel alignment except the turning angle before making any adjustments. The turning angle should be checked only after caster, camber, and toe-in have been adjusted to specifications.

The front wheel alignment specifications given in the Specifications section of this Part, are correct only when the vehicle is at curb load. Be-

fore checking or adjusting the alignment factors, the suspension alignment spacers must be installed to obtain the curb height.

EQUIPMENT INSTALLATION

Equipment used for front wheel alignment inspection must be accurate. Whenever possible, front wheel alignment checks should be performed on stationary wheel aligning equipment. In the absence of such equipment, portable equipment may be used and the work may be performed on a level floor. The floor area should be level within 1/4 inch from front to rear of the vehicle and

within 1/8 inch from side to side. Alignment height spacers (Figs. 1 and 4) are used to check caster and camber. The spacers should be omitted when checking toe-in.

1. Check the runout of each front wheel and tire using a dial indicator against the rim outer band. If the runout exceeds 1/8 inch, correction may be made by rotating the wheel on the drum. When the minimum runout has been obtained, mark the point of greatest runout so the wheels can be positioned as shown in Fig. 5 when checking the front end alignment. Hold a piece of chalk against the wheel rim or the tire sidewall while spinning the wheels. The chalk

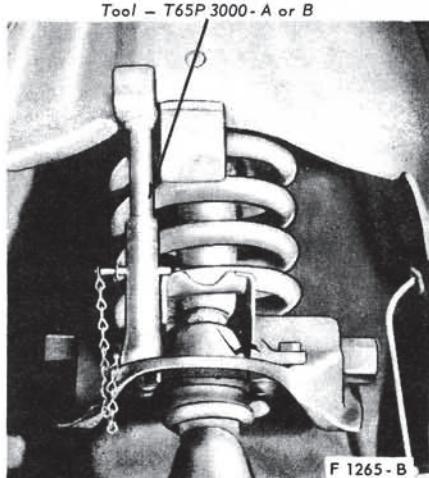


FIG. 1—Typical Front Alignment Spacer Installation—Cougar, Fairlane, Falcon, Montego,

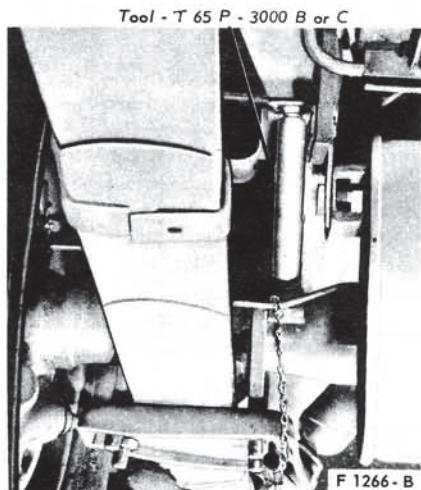


FIG. 2—Typical Rear Alignment Spacer Installation—Cougar, Fairlane, Falcon, Montego,

will mark the rim or tire at the point or greatest runout.

2. Drive the vehicle in a straight line far enough to establish the straight ahead position of the front wheels, and then mark the steering wheel hub and the steering column collar (Fig. 6). Do not adjust the steering wheel spoke position at this time. If the front wheels are turned at any time during the inspection, align the marks to bring the wheels back to the straight-ahead position.

3. With the vehicle in position for the front end alignment inspection and adjustment, install the suspension alignment spacers as follows to establish the curb height.

Lift the front of the vehicle and po-

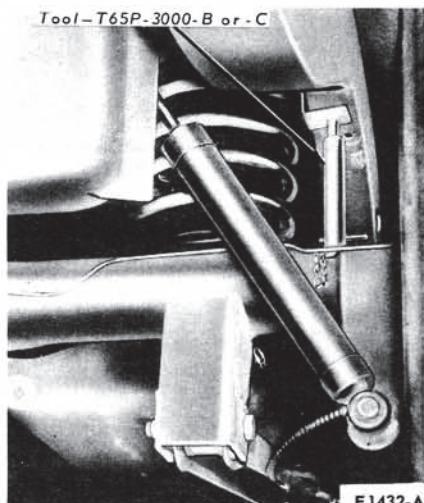


FIG. 3—Alignment Spacer Installation—Rear—Ford, Mercury, Meteor, Thunderbird,

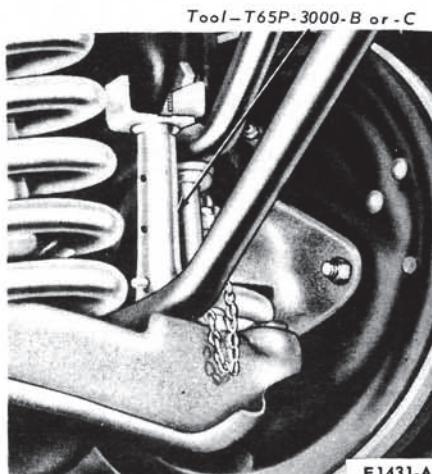
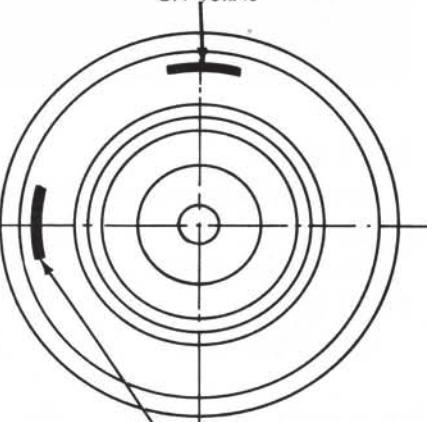


FIG. 4—Alignment Spacer Installation—Front—Ford, Mercury, Meteor, Thunderbird,

sition the alignment spacers between the suspension lower arm and the frame spring pocket as shown in Figs. 1 and 4. Be sure the spacer pin is placed in the correct hole for the vehicle being checked. The lower end of the alignment spacers should be placed over the head of the strut front attaching bolt. Remove the bumpers from the right and left rear side rails. Position the rear alignment spacers between the rear axle and the rear side rails as shown in Figs. 2 and 3.

4. Install the wheel alignment equipment on the vehicle. Whichever type of equipment is used, follow the installation and inspection instruc-

CHALK MARK IN THIS POSITION WHEN CHECKING TOE-IN AND TOE-OUT ON TURNS



CHALK MARK IN THIS POSITION WHEN CHECKING CASTER AND CAMBER

LOCATION OF POINT OF GREATEST LATERAL RUN-OUT ON FRONT WHEELS WHEN CHECKING ALIGNMENT FACTORS

F1215-A

FIG. 5—Front Wheel Position For Checking Alignment



G1701-A

FIG. 6—Straight Ahead Position Marks—Typical

tions provided by the equipment manufacturer.

CASTER

Check the caster angle at each front wheel.

The caster is the forward or rearward tilt of the top of the wheel spindle (Fig. 7). If the spindle tilts to the rear, caster is positive. If the spindle tilts to the front, caster is negative. The correct caster angle, or tilt, is specified in the Specifications Section of this Part.

On Mustang, Cougar, Fairlane,

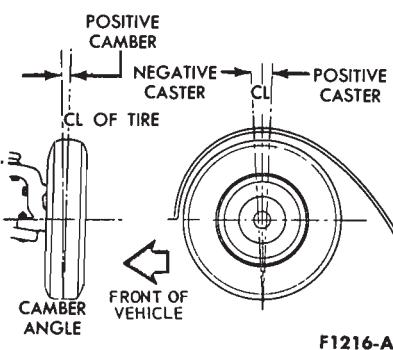


FIG. 7—Caster and Camber Angles

Falcon, Maverick and Montego vehicles, the maximum caster difference for checking purposes must not exceed one degree. If setting is necessary, then the maximum difference must not exceed 1/2 degree. On all other vehicles, the maximum caster difference must never exceed 1/2 degree.

CAMBER

Check the camber angle at each

front wheel.

Camber is the amount the front wheels are tilted at the top (Fig. 7). If a wheel tilts outward, camber is positive. If a wheel tilts inward, camber is negative. The correct camber angle, or outward (positive) tilt is specified in the Specifications Section of this Part.

On Mustang, Cougar, Fairlane, Falcon, Maverick and Montego vehicles, the maximum camber difference for checking purposes must not exceed one degree. If setting is necessary, then the maximum difference must not exceed 1/2 degree. On all other vehicles, the maximum camber difference must never exceed 1/2 degree.

TOE-IN

Alignment height spacers should not be used to check and adjust toe-in. Toe-in should only be checked and adjusted after the caster and camber have been adjusted to specifications.

Check the toe-in with the front wheels in the straight-ahead position. Run the engine so that the power

steering control valve will be in the center (neutral) position (if so equipped). Measure the distance between the extreme front and also between the extreme rear of both front wheels. The difference between these two distances is the toe-in or toe-out.

Correct toe-in, or inward pointing of both front wheels at the front is specified in the Specifications Section of this Part.

FRONT WHEEL TURNING ANGLE

When the inside wheel is turned 20 degrees, the turning angle of the outside wheel should be as specified in the Specifications Section of this Part. The turning angle cannot be adjusted directly, because it is a result of the combination of caster, camber, and toe-in adjustments and should, therefore, be measured only after these adjustments have been made. If the turning angle does not measure to specifications, check the spindle or other suspension parts for a bent condition.

2 COMMON ADJUSTMENTS AND REPAIRS

After front wheel alignment factors have been checked, make the necessary adjustments. **Do not attempt to adjust front wheel alignment by bending the suspension or steering parts.**

CASTER AND CAMBER ADJUSTMENTS

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

Caster and camber is adjusted by loosening the bolts that attach the upper suspension arm inner shaft to the frame side rail, and moving the inner shaft in or out in the elongated bolt holes with the tool shown in Fig. 8. The tool should be installed with the tool pins in the frame holes and the hooks over the upper arm inner shaft. Then, tighten the tool hook nuts snug before loosening the upper arm inner shaft attaching bolts.

Caster

To adjust the caster angle, tighten the tool front hook nut or loosen the rear hook nut (Fig. 9) as required to increase caster to the desired angle. To decrease caster, tighten the tool rear hook nut or loosen the front hook nut as required (Fig. 9). The caster angle can be checked without tightening the inner shaft attaching bolts. Check the camber adjustment to be sure it did not change during the caster adjustment and adjust if necessary. Then, tighten the upper arm inner shaft attaching bolts to specification. Remove the adjusting bar (Tool T69P-3000-A) and the alignment spacers (Tool T65P-3000-E or F).

Camber

To adjust the camber angle, install the tool as outlined above (Fig. 8).

Loosen both inner shaft attaching bolts and tighten or loosen the hook nuts to move the inner shaft inboard or outboard as necessary with Tool

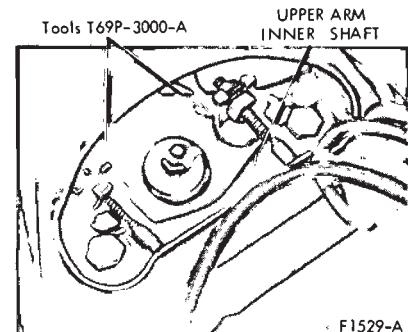


FIG. 8—Camber and Caster Adjusting Tool

T69P-3000-A) to increase or decrease camber (Fig. 8). The camber angle can be checked without tightening the inner shaft attaching bolts.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG, MAVERICK

Be sure all the equipment listed in Equipment Installation is installed before adjusting the caster and camber.

SUSPENSION UPPER ARM MOVEMENT	CASTER CHANGE	CAMBER CHANGE
Front Bolt Outboard	Tilt Backward Increase Positive Caster or Decrease Negative Caster	Tilt Outward Increase Positive Camber or Decrease Negative Camber
Rear Bolt Outboard	Tilt Forward Decrease Positive Caster or Increase Negative Caster	
Front Bolt Inboard	Tilt Forward Decrease Positive Caster or Increase Negative Caster	Tilt Inward Decrease Positive Camber or Increase Negative Camber
Rear Bolt Inboard	Tilt Backward Increase Positive Caster or Decrease Negative Caster	

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FIG. 9—Caster and Camber Adjustments

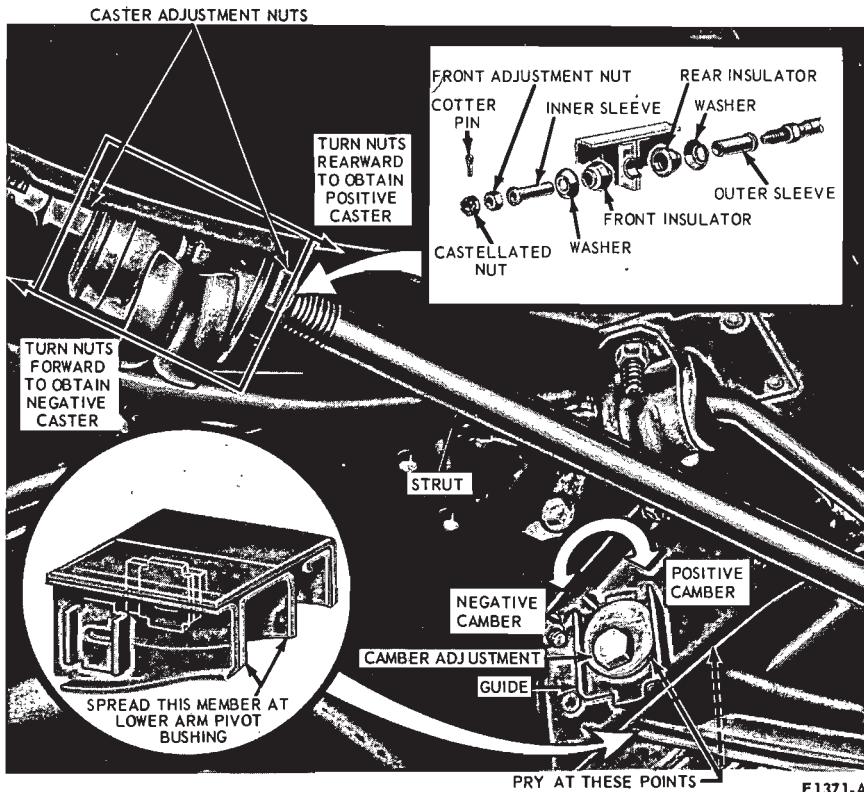


FIG. 10—Caster and Camber Adjustments

Caster is controlled by the front suspension strut (Fig. 10). To obtain positive caster, loosen the strut rear nut and tighten the strut front nut against the bushing. To obtain negative caster, loosen the strut front nut

and tighten the strut rear nut against the bushing.

Camber is controlled by the eccentric cam located at the lower arm attachment to the side rail (Fig. 8).

To adjust the camber, loosen the

camber adjustment bolt nut at the rear of the body bracket. Spread the body bracket at the camber adjustment bolt area just enough to permit lateral travel of the arm when the adjustment bolt is turned. Rotate the bolt and eccentric clockwise from the high position to increase camber or counterclockwise to decrease camber.

After the caster and camber has been adjusted to specification, torque the lower arm eccentric bolt nut and the strut front nut to specification.

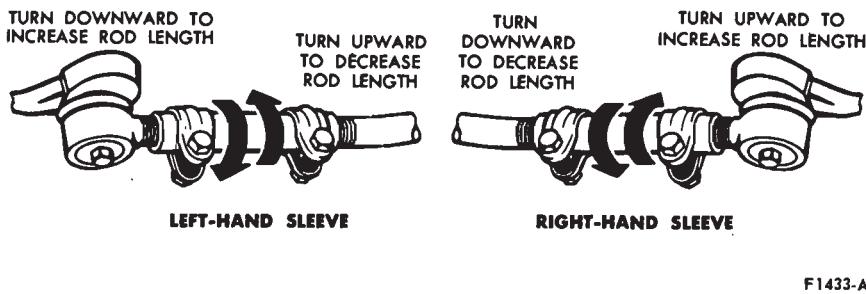
TOE-IN AND STEERING WHEEL SPOKE POSITION ADJUSTMENTS

Check the steering wheel spoke position when the front wheels are in the straight-ahead position. If the spokes are not in their normal position, they can be properly adjusted while toe-in is being adjusted.

1. Loosen the two clamp bolts on each spindle connecting rod sleeve (Fig. 11).

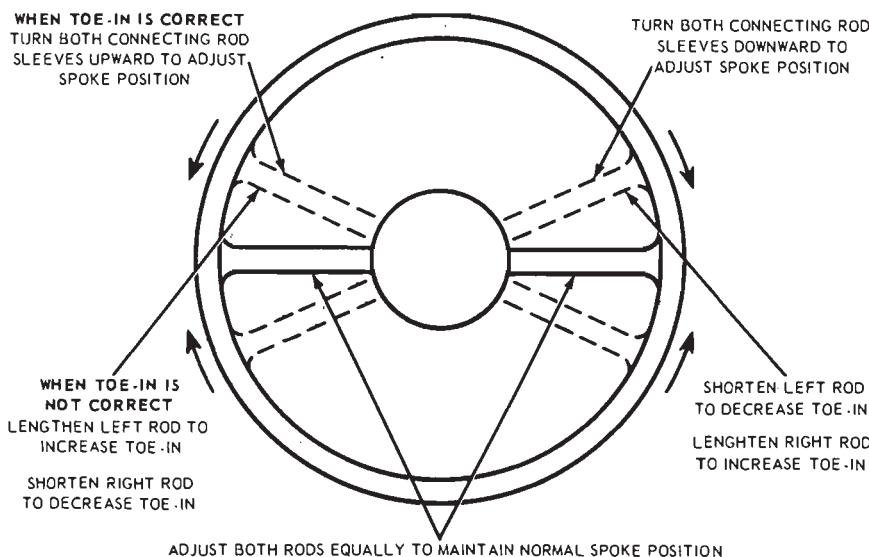
2. Adjust toe-in. If the steering wheel spokes are in their normal position, lengthen or shorten both rods equally to obtain correct toe-in (Fig. 11). If the steering wheel spokes are not in their normal position, make the necessary rod adjustments to obtain correct toe-in and steering wheel spoke alignment (Fig. 12).

3. Recheck toe-in and the steering wheel spoke position. If toe-in is correct and the steering wheel spokes are



F1433-A

FIG. 11—Spindle Connecting Rod Adjustment



F1434-A

FIG. 12—Toe-In and Steering Wheel Spoke Alignment Adjustments—Typical

3 CLEANING AND INSPECTION

FRONT END GENERAL INSPECTION

Do not check and adjust front wheel alignment without first making the following inspection for front-end damage, or wear.

1. Check for specified air pressures in all four tires.
2. Raise the front of the vehicle off the floor. Shake each front wheel grasping the upper and lower surfaces of the tire. Check the front suspen-

sion ball joints and mountings for looseness, wear, and damage. Check the brake backing plate mountings. Torque all loose nuts and bolts to specification. Replace all worn parts as outlined in Part 14-02.

3. Check the steering gear mountings and all steering linkage connections for looseness. Torque all mountings to specifications. If any of the linkage is worn or bent, replace the parts as outlined in Part 13-03.

4. Check the front wheel bearings.

If any in-and-out free play is noticed, adjust the bearings to specifications. Replace worn or damaged bearings as outlined in Part 11-02.

5. Spin each front wheel with a wheel spinner, and check and balance each wheel as required.

6. Check the action of the shock absorbers. If the shock absorbers are not in good condition, the vehicle may not settle in a normal, level position, and front wheel alignment may be affected.

UPPER BALL JOINT INSPECTION

Ford, Mercury, Meteor, Thunderbird, Lincoln Continental and Continental Mark III

1. Raise the vehicle and place floor jacks beneath the lower arms.

2. Ask an assistant to grasp the lower edge of the tire and move the wheel in and out.

3. As the wheel is being moved in and out, observe the upper end of the spindle and the upper arm.

4. Any movement between the upper end of the spindle and the upper arm indicates ball joint wear and loss of preload. If any such movement is observed, replace the upper ball joint.

During the foregoing check, the lower ball joint will be unloaded and may move. Disregard all such movement of the lower ball joint. Also, do not mistake loose wheel bearings for a worn ball joint.

Cougar, Fairlane, Falcon, Montego and Mustang

1. Raise the vehicle on a frame contact hoist or by floor jacks placed beneath the underbody until the wheel falls to the full down position as shown in Fig. 13. This will unload the upper ball joint.

2. Adjust the wheel bearings as described in Part 11-02.

3. Attach a dial indicator to the upper arm and position the indicator so that the plunger rests against the inner side of the wheel rim adjacent to the upper arm ball joint.

4. Grasp the tire at the top and

bottom, and slowly move the tire in and out (Fig. 13). Note the reading (radial play) on the dial indicator. If the reading exceeds specifications, replace the upper ball joint.

LOWER BALL JOINT INSPECTION

Ford, Mercury, Meteor, Thunderbird, Lincoln Continental and Continental Mark III

1. Raise the vehicle and place jacks under the lower arms as shown in Fig. 14. This will unload the lower ball joints.

2. Adjust the wheel bearings as described in Part 11-02.

3. Attach a dial indicator to the lower arm and position the indicator so that the plunger rests against the inner side of the wheel rim adjacent to the lower ball joint.

4. Grasp the tire at the top and bottom and slowly move the tire in and out (Fig. 14). Note the reading (radial play) on the dial indicator. If the reading exceeds specifications, replace the lower ball joint.

Cougar, Fairlane, Falcon, Montego, Mustang

1. Raise the vehicle on a frame contact hoist or by floor jacks placed beneath the underbody until the wheel falls to the full down position.

2. Ask an assistant to grasp the lower edge of the tire and move the wheel in and out.

3. As the wheel is being moved in and out, observe the lower end of the spindle and the lower arm.

4. Any movement between the

lower end of the spindle and the lower arm indicates ball joint wear and loss of preload. If any such movement is observed, replace the lower arm.

During the foregoing check, the upper ball joint will be unloaded and may move. Disregard all such movement of the upper ball joint. Also, do not mistake loose wheel bearings for a worn ball joint.

SHOCK ABSORBER CHECKS

All vehicles are equipped with hydraulic shock absorbers of the direct-acting type and are nonadjustable and nonrefillable. They cannot be repaired.

Before replacing a shock absorber, check the action of the shock absorbers as follows:

ON VEHICLE TESTS

1. Check the shock absorber to be sure it is securely and properly installed. Check the shock absorber insulators for damage and wear.

Replace any defective insulators and tighten attachments to the specified torque (on a shock absorber which incorporates integral insulators, replace the shock absorbers).

2. Inspect the shock absorber for evidence of fluid leakage. A light film of fluid is permissible. Be sure any fluid observed is not from sources other than the shock absorber.

Replace the shock absorber if leakage is severe.

3. Disconnect the lower end of the shock absorber. Extend and compress the shock absorber as fast as possible, using as much travel as possible.

Action should become smooth and uniform throughout each stroke. Higher resistance on extension than on compression is a normal condition. Faint swish noises are also normal.

Remove the shock absorber for a bench test if action is erratic. If the action is smooth, but the shock absorbers are suspected of being weak follow step 4:

4. Repeat step 3 on the mating shock absorber installed on the opposite side of the vehicle, and compare results of both tests. If the action is similar, it is unlikely that either shock absorber is defective. Reconnect both shock absorbers.

Replace the shock absorber having the lower resistance. Ensure that the part number of the replacement is the same as that of the original shock absorber. The replacement shock absorber resistance will appear to be higher

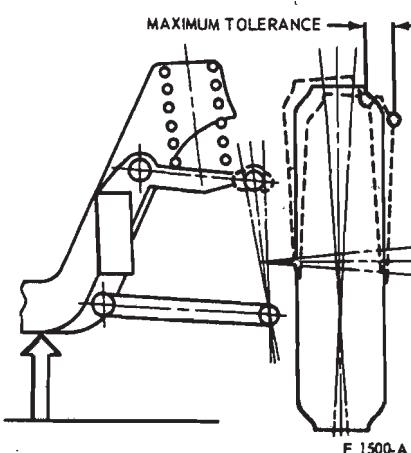


FIG. 13—Measuring Upper Ball Joint Radial Play

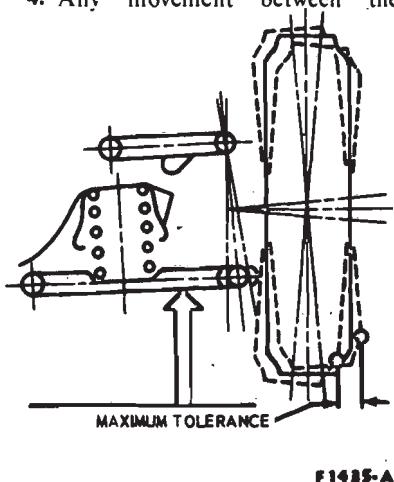


FIG. 14—Measuring Lower Ball Joint Radial Play

than either original due to initial friction of the rod seal.

BENCH TEST

With the shock absorber right side

up (as installed in vehicle), extend it fully. Then turn the shock absorber upside down and fully compress it. Repeat this procedure at least three times to ensure that any entrapped air has been expelled. Now place the

shock absorber right side up in a vise, and hand stroke the shock absorber as described in On Vehicle Tests, step 3. If action is not now smooth and uniform, install a new shock absorber.

4 SPECIFICATIONS

FRONT WHEEL ALIGNMENT

Vehicle Model	Dimension "C" Inches	Dimension "D" Inches	Alignment Factors	Min.	Max.
Maverick	③ 6.30	④ 5.85	Caster ① Camber ① Toe-in-Inches	-1-1/2° -1/2° 1/16	+1/2° +1° 5/16
Mustang, Cougar	③ 6.30	④ 5.50 (Mustang) 6.35 (Cougar)	Caster ① Camber ① Toe-in-Inches	-1° +1/4° 1/16	+1° +1-3/4° 5/16
Fairlane, Falcon Montego	③ 6.50	④ 6.72	Caster ① Camber ① Toe-in-Inches	-1-3/4° -1/2° 1/8	+1/4° +1° 3/8
Ford, Mercury Meteor	⑤ 4.20	④ 6.70	Caster ② Camber ② Toe-in-Inches	0° -1/4° 1/16	+2° +1-1/4° 5/16
Thunderbird, Mark III	⑤ 4.20	⑥ 6.70	Caster ② Camber ② Toe-in-Inches	0° -1/4° 1/16	+2° +1-1/4° 5/16
Lincoln Continental	⑤ 3.50	⑥ 5.70	Caster ② Camber ② Toe-in-Inches	-1/2° -1/4° 1/8 out to 1/8 in	-2-1/2° +1-1/4°

① Maximum difference between wheels not to exceed 1/2° (setting). Maximum checking difference not to exceed 1° with caster and camber within specifications.
 ② Maximum difference between wheels not to exceed 1/2°.
 ③ Vertical distance between bottom surface of spring tower on centerline of rebound bumper bolt and point on flat surface of upper suspension arm midway between ball joint rivets.
 ④ Shortest vertical distance between point on side member and axle housing.
 ⑤ Distance from corner of lower flange sidemember front to center of bolt head (strut mounting bolt).
 ⑥ Vertical distance between bottom of sidemember at center of axle bumper bracket and top of axle housing.

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WHEELBASE AND TREAD WIDTH-INCHES

FRONT WHEEL TURNING ANGLE

Vehicle Model	Wheelbase	Tread Width		Vehicle Model	Turning Angle of Outside Wheel With Inside Wheel Turned 20°
		Front	Rear		
Maverick	103.0	54.9	54.9	Maverick	18.48°
Mustang	108.0	58.5	58.5	Mustang, Cougar	18.68°
Cougar	111.1	58.5	58.5	Fairlane, Falcon, Montego	With Power Steering 17.81° With Manual Steering 17.32°
Fairlane, Montego	117.0	60.6	60.3	Ford, Mercury, Meteor	19.16°
Fairlane, Montego Sta. Wagon	114.0	60.6	60.3	Thunderbird, Mark III	19.28°
Falcon (except Station Wagon)	110.9	58.8	58.5	Lincoln Continental	18.70°
Falcon Station Wagon	113.0	58.8	58.5		
Ford	121.0	63.0	64.0		
Mercury, Meteor	124.0	63.0	64.0		
Thunderbird (2-Door)	114.7	62.0	62.0		
Thunderbird (4-Door), Mark III	117.2	62.0	62.0		
Lincoln Continental	127.0	64.3	64.3		

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BALL JOINTS-RADIAL PLAY

Vehicle Model	Description	Radial Play-Max. Allowable
Cougar, Fairlane, Falcon, Montego, Mustang, Maverick	Lower Ball Joint	Replace if perceptibly loose 0.250 Inch
	Upper Ball Joint	
Ford, Mercury, Meteor, Thunderbird, Mark III, Lincoln Continental	Lower Ball Joint	0.250 Inch
	Upper Ball Joint	Replace if perceptibly loose

CF1543-A

SPECIAL SERVICE TOOLS

Tool No.	Description
T65P-3000-E, F	Alignment Spacers
T69P-3000-A	Caster and Camber Adjusting Tools

CF1544-A

PART 14-02 Front Suspension

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
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FRONT SPRING Removal and Installation		02-06	02-06	02-06	02-07	02-07	02-07	02-07	02-07	02-07	02-06	02-06	02-06
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FRONT SUSPENSION LOWER ARM Removal and Installation		02-08	02-08	02-08	02-09	02-09	02-09	02-09	02-09	02-09	02-08	02-08	02-08
FRONT SUSPENSION LOWER ARM STRUT AND/OR BUSHING Removal and Installation		02-06	02-06	02-06	02-06	02-06	02-06	02-06	02-06	02-06	02-06	02-06	02-06
FRONT SUSPENSION UPPER ARM Removal and Installation		02-09	02-09	02-09	02-10	02-10	02-10	02-10	02-10	02-10	02-09	02-09	02-09
FRONT SUSPENSION UPPER ARM BUSHINGS — ARM REMOVED. Removal and Installation		02-13	02-13	02-13	N/A	N/A	N/A	N/A	N/A	N/A	02-13	02-13	02-13
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HOISTING INSTRUCTIONS	02-03												
LOWER BALL JOINT-ARM IN VEHICLE Removal and Installation		02-05	02-05	02-05	N/A	N/A	N/A	N/A	N/A	N/A	02-05	02-05	02-05
STABILIZER Removal and Installation		02-05	02-05	02-05	02-06	02-06	02-06	02-06	02-06	02-06	02-05	02-05	02-05
UPPER ARM SHAFT AND/OR BUSHING Removal and Installation		N/A	N/A	N/A	02-04	02-04	02-04	02-04	02-04	02-04	N/A	N/A	N/A
UPPER BALL JOINT Removal and Installation		02-03	02-03	02-03	02-04	02-04	02-04	02-04	02-04	02-04	02-03	02-03	02-03

A page number indicates that the item is for the vehicle(s) listed at the head of the column.

N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION

Each front wheel rotates on a spindle. The upper and lower ends of the spindle are attached to upper and lower ball joints which are mounted to an upper and lower arm respectively. The upper arm pivots on a bushing

and shaft assembly which is bolted to the frame. The lower arm pivots on a bolt in the Number 2 crossmember (Figs. 1 and 2). A coil spring seats between the lower (upper on Cougar,

Fairlane, Falcon, Maverick, Montego and Mustang) arm and the top of the spring housing. A double action shock absorber is bolted to the arm and the top of the spring housing.

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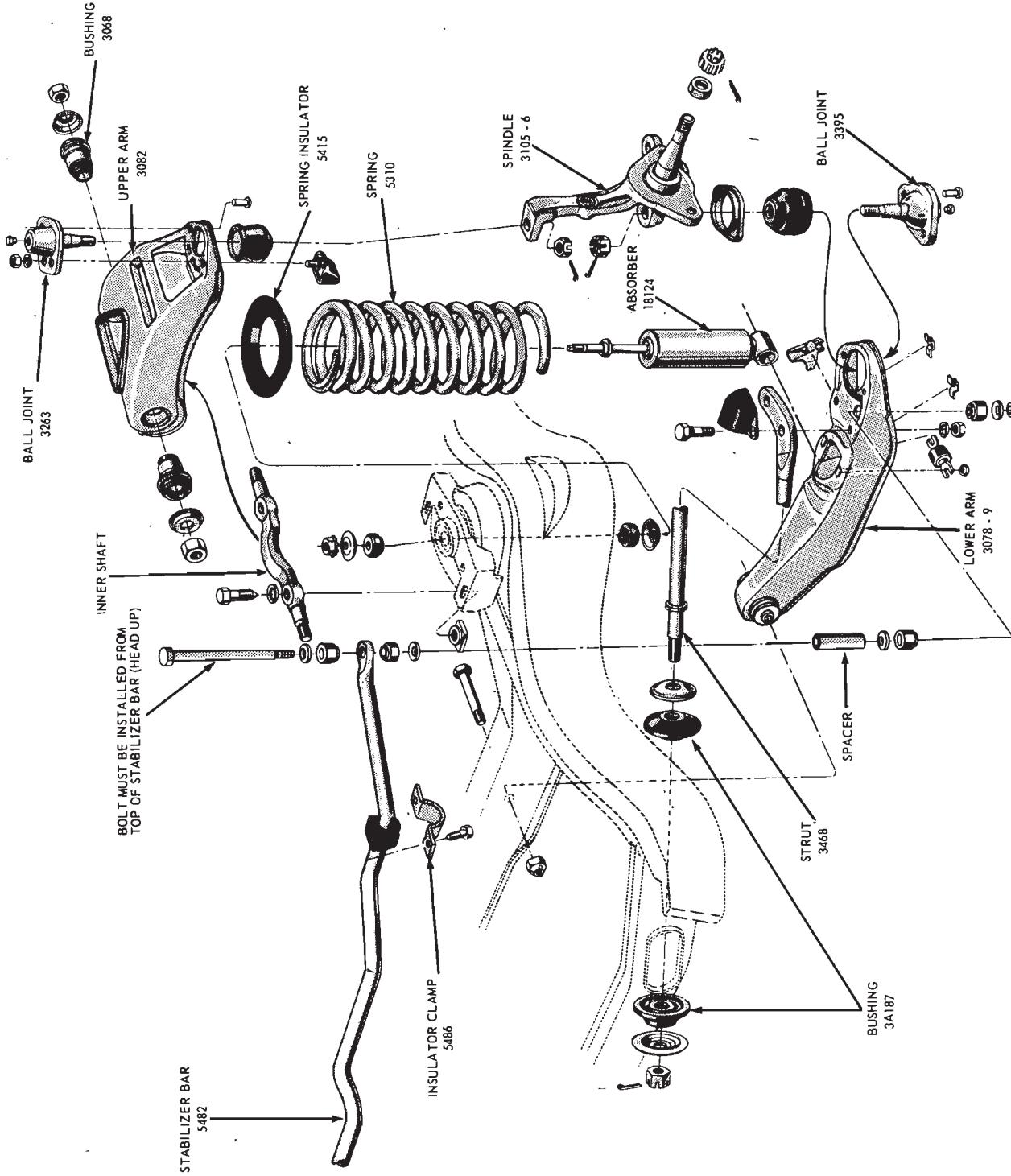


FIG. 1—Front Suspension Disassembled—Typical—Ford, Mercury, Thunderbird, Continental Mark III, Lincoln
Continental

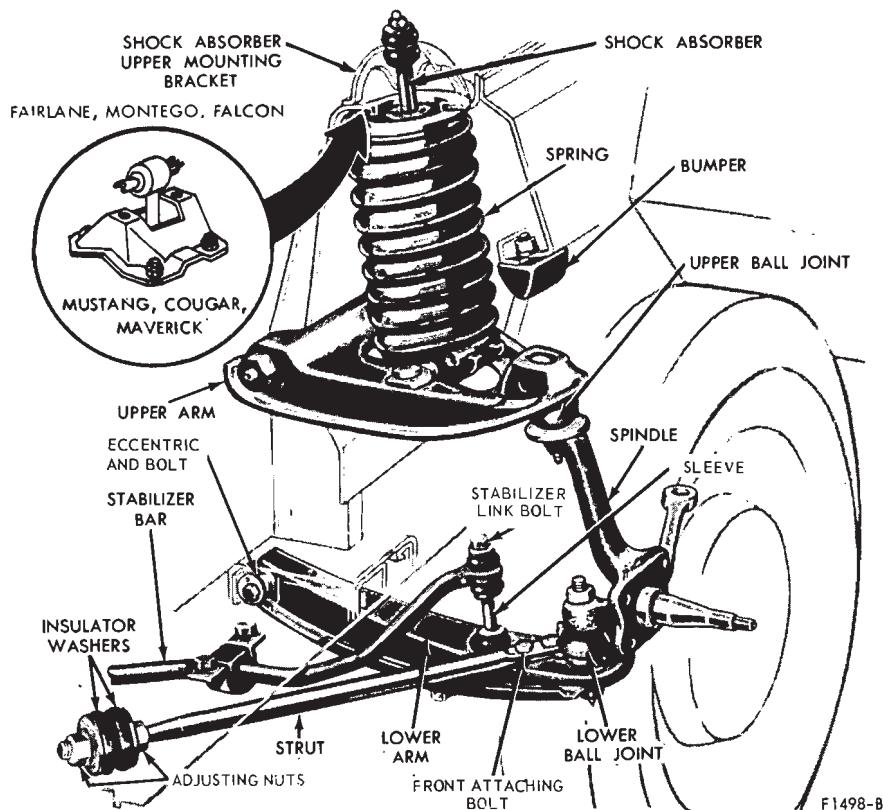


FIG. 2—Front Suspension—Typical—Cougar, Fairlane, Falcon, Montego, Mustang, Maverick

2 IN-VEHICLE ADJUSTMENTS AND REPAIRS

HOISTING INSTRUCTIONS

Damage to steering linkage components and front suspension struts may occur if care is not exercised when positioning the hoist adapters of 2 post hoists prior to lifting the vehicle.

If a 2 post hoist is used to lift the vehicle, place the adapters under the lower arms or the No. 1 crossmember. Do not allow the adapters to contact the steering linkage. If the adapters are placed under the crossmember, a piece of wood (2 x 4 x 16 inches) should be placed on the hoist channel between the adapters. This will prevent the adapters from damaging the front suspension struts.

UPPER BALL JOINT REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

1. Raise the vehicle high enough to

provide working space, and place a support under the lower arm. If a chain hoist or a jack that has a narrow contact pad is to be used on the bumper to raise the vehicle, distribute the load along the bumper by using a steel plate 3 or 4 inches long as a contact pad to prevent damaging the bumper.

2. Remove the wheel and tire.
3. Drill a 1/8-inch hole through each upper ball joint retaining rivet. Using a large chisel, cut off the rivets.
4. Remove the upper arm suspension bumper.
5. Remove the cotter pin and nut from the upper ball joint stud.

6. Place a box wrench over the lower end of the ball joint remover tool, and position the tool as in Fig. 3. The tools should seat firmly against the ends of both studs, and not against the lower stud nut.

7. Turn the wrench until both studs are under tension, and then, with a hammer, tap the spindle near the upper stud to loosen the stud from the spindle. Do not loosen the stud with tool pressure alone. Remove the



FIG. 3—Disconnecting Ball Joints—Typical

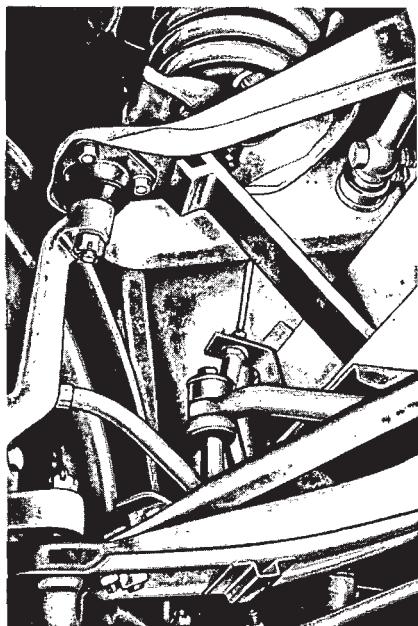
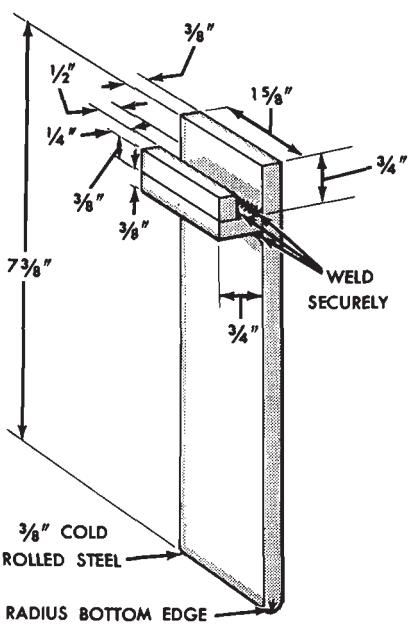


FIG. 4—Upper Arm Support—Mustang



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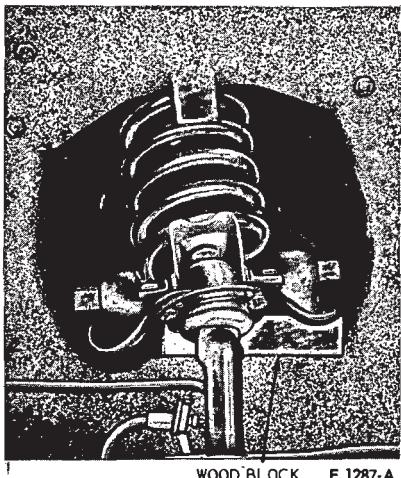


FIG. 5—Upper Arm Support—Montego, Falcon, Fairlane and Maverick

ball joint.

8. Clean the end of the arm, and remove all burrs from the hole edges. Check for cracks in the metal at the holes, and replace the arm if it is cracked.

9. Attach the new ball joint to the upper arm. Use only the specified bolts, nuts, and washers. Do not rivet the new ball joints to the arm. Torque the nuts to specification.

10. Install the upper arm suspension bumper. Torque the nut to specification.

11. Position the ball joint stud in the spindle bore, and torque the at-

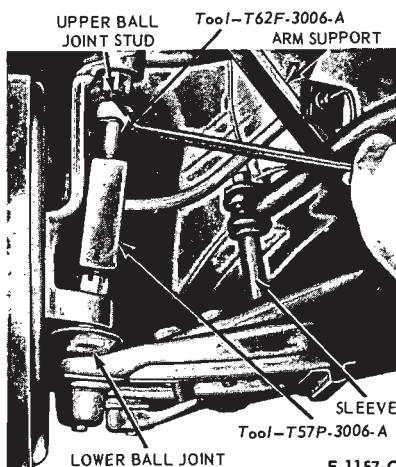


FIG. 6—Loosening Ball Joint Studs in Spindle—Typical

taching nut to specification. Install a new cotter pin.

12. Install the wheel and tire.

13. Remove the safety stands, and lower the vehicle.

14. Check and, if necessary, adjust caster, camber, and toe-in. Whenever any part of the front suspension has been removed and installed, front wheel alignment must be checked.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG AND MAVERICK

1. Position a support between the upper arm and frame side rail as

shown in Figs. 4 and 5; then, raise the vehicle and position safety stands.

2. Remove the wheel and tire.
3. Remove the cotter pin and nut from the upper ball joint stud.

4. Position the ball joint remover tool as shown in Fig. 6. The tool should seat firmly against the ends of both studs, and not against the lower stud nut. It may be necessary to remove the lower ball joint cotter pin if it prevents the tool from seating on the lower stud.

5. Turn the tool with a wrench until both studs are under tension, and then, with a hammer, tap the spindle near the upper stud to loosen the stud from the spindle. Do not loosen the stud with tool pressure alone. Raise the stud out of the spindle bore.

6. Using a large chisel, cut off the three upper ball joint retaining rivets and remove the ball joint.

7. Clean the end of the arm, and remove all burrs from the hole edges. Check for cracks in the metal at the holes, and replace the arm if it is cracked.

8. Attach the new ball joint to the upper arm. Use only the specified bolts, nuts, and washers. Do not rivet the new ball joint to the arm. Torque the nuts to specification (Specifications Section of this part).

9. Position the lower ball joint stud in the spindle bore, and torque the attaching nut to specification. Install a new cotter pin and tighten the nut if necessary to line up the cotter pin hole. Install a new cotter pin in the lower ball joint if it was removed.

10. Lubricate the ball joint, and install the wheel and tire. Torque the lug nuts to specification (Part 11-02).

11. Remove the safety stands, and lower the vehicle.

12. Remove the support from between the upper arm and frame.

13. Check and, if necessary, adjust caster, camber, and toe-in.

UPPER ARM SHAFT AND/OR BUSHING REMOVAL AND INSTALLATION

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG AND MAVERICK

1. Remove the shock absorber and upper mounting bracket as an assembly.

2. Raise the vehicle on a hoist, install safety stands, and remove the wheel cover or hub cap.

3. Remove the grease cap from the

hub; then, remove the cotter pin, nut lock, adjusting nut and outer bearing from the hub.

4. Pull the wheel, tire, and the hub and drum off the spindle as an assembly.

5. Install the spring compressor tool (Figs. 11 and 12).

6. Remove 2 upper arm-to-spring tower attaching nuts and swing the upper arm outboard from the spring tower.

7. Rotate the inner shaft so that the studs can be removed. Remove the studs with a soft mallet.

8. Unscrew the bushings from the shaft and suspension arm; then, remove the shaft from the arm.

9. Position the shaft in the arm, apply grease to the new bushings and O-rings, and install the bushings loose on the shaft and arm. Turn the bushings so that the shaft is exactly centered. The shaft will be properly centered when dimensions A and B in Fig. 7 are equal.

10. Fabricate a spacer from a section of 3/4-inch diameter pipe or

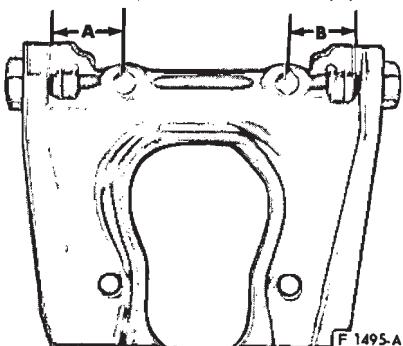


FIG. 7—Shaft Centered in Arm—Typical

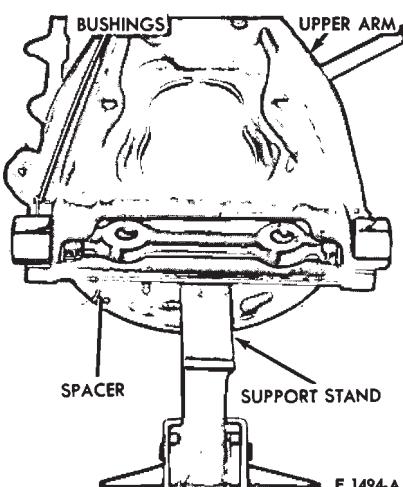


FIG. 8—Torque Upper Arm Inner Shaft Bushings—Typical

metal of comparable size and strength. The spacer should be 6 15/16 inches long.

11. Position the spacer parallel with the inner shaft, and force the spacer between the flanges of the upper arm (Fig. 8).

If the spacer cannot be forced between the arm flanges due to excessive distortion, replace the upper arm assembly.

12. With the spacer positioned in the arm, torque the bushings to specification. Move the arm on the shaft to be sure that no binding exists, then remove the spacer.

13. Attach the suspension upper arm to the underbody. Release the front spring.

14. Remove the spring compressor and position the wheel, tire, and hub and drum on the spindle.

15. Install the bearing, washer, adjusting nut and nut lock. Adjust the wheel bearing as outlined in Part 11-02 and install the cotter pin, grease cap and hub cap or wheel cover.

16. Lower the vehicle and install the shock absorber and upper mounting bracket.

17. Check caster, camber, and toe-in, and adjust as necessary (Part 14-01).

LOWER BALL JOINT REMOVAL AND INSTALLATION—ARM IN VEHICLE

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

1. Raise the vehicle high enough to provide working space, leaving the lower arm free to drop as coil spring tension is eased. If a chain hoist or a jack that has a narrow contact pad is to be used on the bumper to raise the car, distribute the load along the bumper by using a steel plate 3 or 4 inches long as a contact pad to prevent damaging the bumper.

2. If the ball joint is riveted to the arm, drill a 1/8-inch pilot hole completely through each rivet. Then drill off the rivet head through the pilot hole with a 3/8-inch drill, and drive out both rivets.

3. Position a jack or safety stand under the lower arm, and lower the vehicle about 6 inches to offset the coil spring tension.

4. Remove the cotter pin from the ball joint stud, and remove the nut.

5. Place a box wrench over the lower end of the tool shown in Fig. 3, and position the tool. The tool should seat firmly against the end of both studs, and not against the upper stud nut.

6. Turn the wrench until both studs are under tension, and then, with a hammer, tap the spindle near the lower stud to loosen the stud from the spindle. Do not loosen the stud with tool pressure alone. Remove the ball joint.

7. Clean the end of the arm, and remove all burrs from the hole edges. Check for cracks in the metal at the holes, and replace the arm if it is cracked.

8. Position the stud of the ball joint to the spindle bore, and install the attaching nut finger-tight.

9. Attach the ball joint to the lower arm. Use only the specified bolts and nuts. Do not rivet the new ball joint to the arm. Torque nuts to specification.

10. Torque the ball joint stud nut to specification, and install a new cotter pin.

11. Remove the jack.

12. Check and, if necessary, adjust caster, camber, and toe-in. Whenever any part of the front suspension has been removed and installed, front wheel alignment must be checked.

STABILIZER REPAIR

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

To replace the end bushings on each stabilizer link, use the following procedure.

1. Raise the vehicle on a hoist.

2. Remove the nut, washer and insulator from the lower end of the stabilizer bar attaching bolt.

3. Remove the bolt and the remaining washers(3) insulators (3) and the spacer.

4. Assemble a flat washer and a new insulator on the bolt.

5. Insert the bolt through the stabilizer bar then install a new insulator and a flat washer on it.

6. Install the spacer, flat washer and another new insulator on the bolt (Fig. 1).

7. Insert the bolt through the lower arm and install a new insulator and a flat washer. Install and torque the attaching nut to specification.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG, MAVERICK

1. Raise the vehicle high enough to provide working space, and place supports under both front wheels.
2. Disconnect the stabilizer from each link. Disconnect both stabilizer attaching brackets, and remove the stabilizer.
3. Coat the necessary parts of the stabilizer with RUGLYDE or a comparable lubricant, and slide new insulators onto the stabilizer.
4. Secure each end of the stabilizer bar to the lower arm making sure that the bolt head is at the top (Fig. 1) to eliminate interference with the brake hose.
5. Remove the supports and lower the vehicle.

FRONT SUSPENSION LOWER ARM STRUT AND/OR BUSHING REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

1. Remove the cotter pin from the

lower arm strut at the frame front crossmember and remove the nut, washer, and bushing from the strut.

2. Remove nuts, washers, and bolts attaching the strut and rubber bumper to the lower arm (Fig. 1).
3. Pull the strut from the frame crossmember.
4. Remove the crossmember rear side bushing and washer from the strut.
5. Place the crossmember rear side washer and bushing on the strut and position the strut to the frame and lower arm.
6. Position the rubber bumper on the strut and install the bolts, washer, and nuts attaching the strut to the lower arm. Torque the nuts and bolts to specification.
7. Install the bushing, washer, and nut on the strut at the front crossmember. Tighten the nut and install the cotter pin.
8. Check caster, camber, and toe-in and adjust if necessary.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG AND MAVERICK

1. Position the support as shown in Figs. 4 and 5 under the upper arm.

2. Raise the vehicle, position safety stands, and remove the wheel and tire.

3. Remove the adjustment nut from the front of the strut.
4. With two pry bars approximately 18 inches long, one at each side and at the rear of the front washer, pry it forward to separate the inner sleeve from the outer sleeve. Remove the front insulator from the strut (Fig. 2).

5. Install the new rear washer (large ID), outer sleeve and insulator bushing on the forward end of the strut rod.

6. Position the strut into the crossmember and to-the lower suspension arm. Install the strut-to-arm attaching bolts and nuts, and torque them to specification.

7. Install the forward insulator washer (small ID), inner sleeve and adjustment nut on the forward end of the strut. The inner sleeve need not be crimped to the outer sleeve.

8. Install the wheel and tire, remove the safety stands and lower the vehicle. Remove the tool supporting the upper arm.

9. Adjust the caster and camber to specification.

3 REMOVAL AND INSTALLATION

HOISTING INSTRUCTIONS

Damage to steering linkage components and front suspension struts may occur if care is not exercised when positioning the hoist adapters of 2 post hoists prior to lifting the vehicle.

If a 2 post hoist is used to lift the vehicle, place the adapters under the lower arms or the No. 1 crossmember. Do not allow the adapters to contact the steering linkage. If the adapters are placed under the crossmember, a piece of wood (2 x 4 x 16 inches) should be placed on the hoist channel between the adapters. This will prevent the adapters from damaging the front suspension struts.

FRONT SPRING REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

Removal

1. Raise the vehicle and support the front end of the frame with jack stands.
2. Place a jack under the lower arm to support it.
3. Disconnect the lower end of the shock absorber from the lower arm.
4. Remove the bolts that attach the strut and the rebound bumper to the lower arm.

5. Disconnect the lower end of the sway bar stud from the lower arm.

6. Remove the nut and bolt that secures the inner end of the lower arm to the crossmember.

7. Carefully lower the jack slowly to relieve the spring pressure on the lower arm, then remove the spring (Fig. 9).

Installation

1. Position the spring on the lower arm so that the lower end properly engages the seat.

2. Raise the lower arm carefully with a jack while guiding the inner end to align with the bolt hole in the crossmember. Insert the attaching bolt in the rear of the crossmember

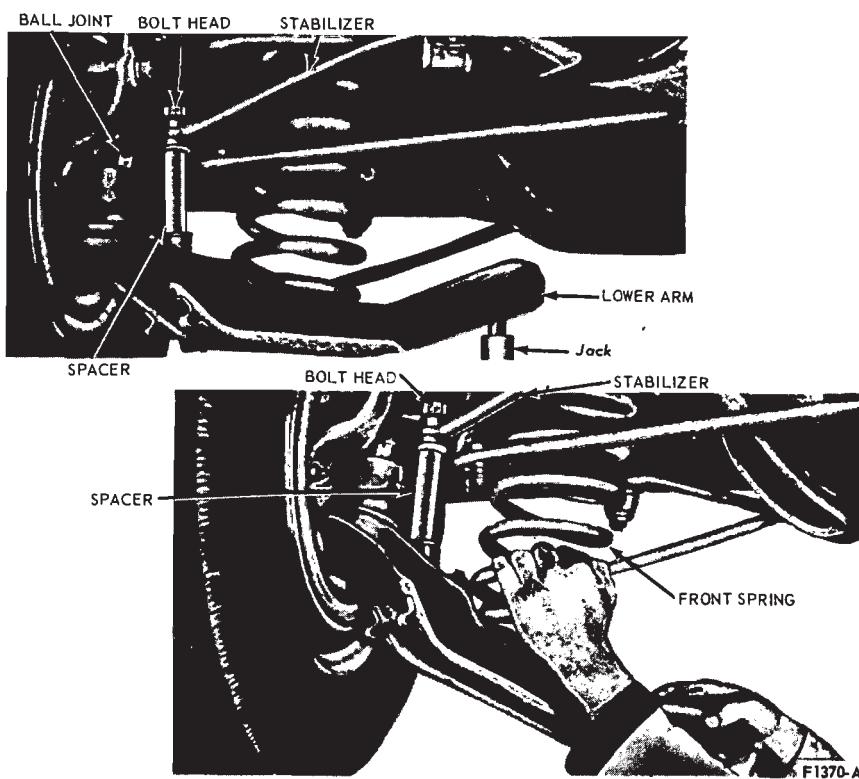


FIG. 9—Removing or Installing Front Spring

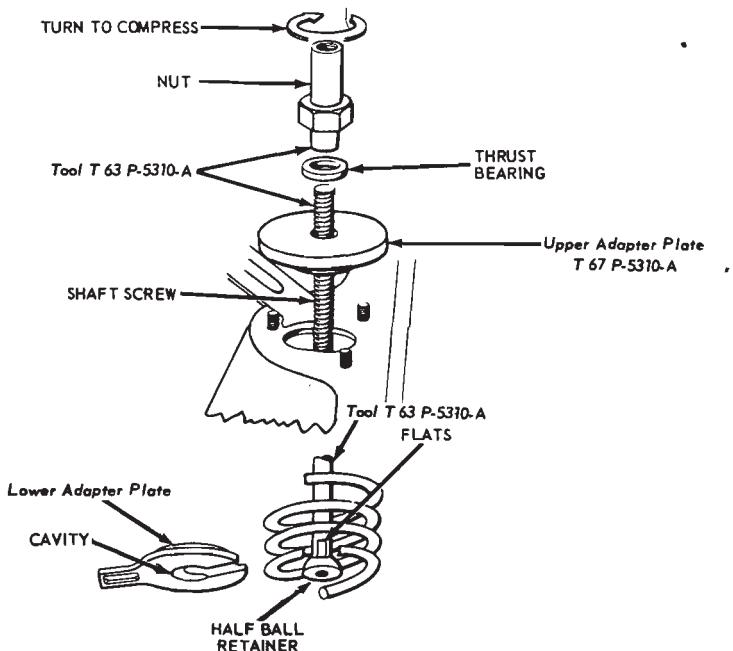


FIG. 10—Spring Tool Installation

and through the lower arm. Install and torque the nut to specification.

3. Secure the lower end of the shock absorber to the lower arm with

the two attaching bolts.

4. Secure the strut and the rebound bumper to the lower arm with the two attaching bolts. Torque the bolts to

specification

5. Connect the sway bar to the lower arm with the attaching washer and insulators as shown in Fig. 1. Torque the nut to specification.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG AND MAVERICK

Removal

1. Remove the shock absorber and upper mounting bracket as an assembly.

2. Raise the vehicle on a hoist, install safety stands, and remove the wheel cover or hub cap.

3. Remove the grease cap from the hub; then, remove the cotter pin, nut lock, adjusting nut and outer bearing from the hub.

4. Pull the wheel, tire and the hub and drum off the spindle as an assembly.

5. Install the spring compressor tool as shown in Figs. 10, 11 and 12.

6. Remove 2 upper arm-to-spring tower attaching nuts and swing the upper arm outboard from the spring tower (Fig. 12).

7. Release the spring compressor tool and remove the tool from the spring. Then, remove the spring from the vehicle.

Installation

1. Place the spring upper insulator on the spring and secure in place with tape.

2. Position the spring in the spring tower. Install the spring compressor (Fig. 10) and compress the spring.

3. Swing the upper arm inboard and insert the bolts through the holes in the side of the spring tower. Then, install the attaching nuts and torque them to specification.

4. Release the spring pressure and guide the spring into the upper arm spring seat. The end of the spring must be no more than 1/2 inch from the tab on the spring seat.

5. Remove the spring compressor and position the wheel, tire, and hub and drum on the spindle.

6. Install the bearing, washer, adjusting nut and lock nut. Adjust the wheel bearing as outlined in Part 11-02 and install the cotter pin, grease cap, and hub cap or wheel cover.

7. Lower the vehicle and install the shock absorber and upper mounting bracket.

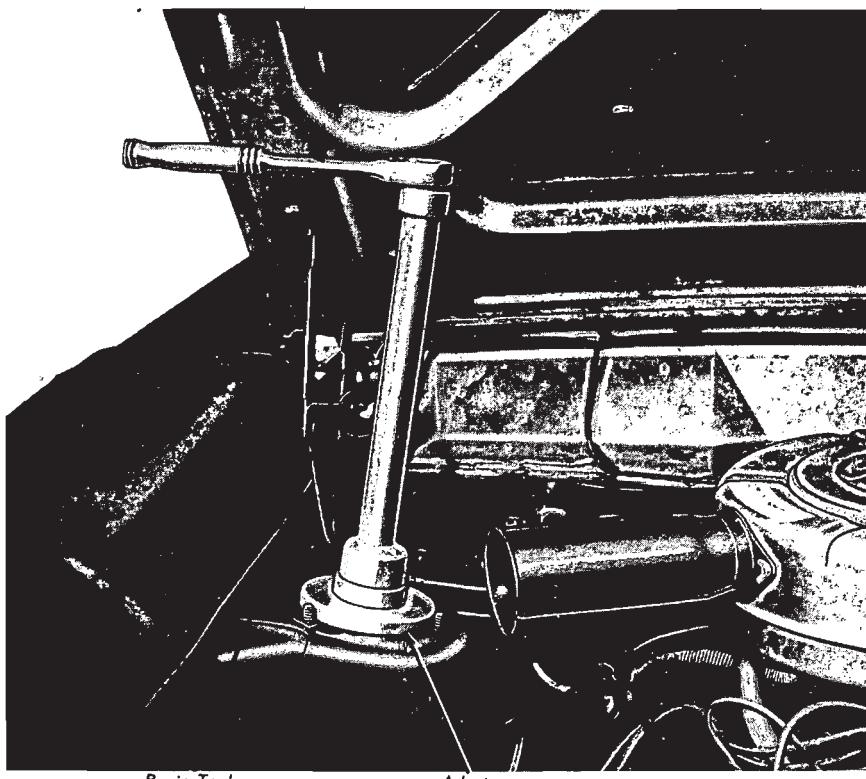


FIG. 11—Spring Compressor Tool Installed—Upper View—Typical

DETAIL NO. 3 T63P-5310-A DETAIL NO. 4 DETAIL NO. 1

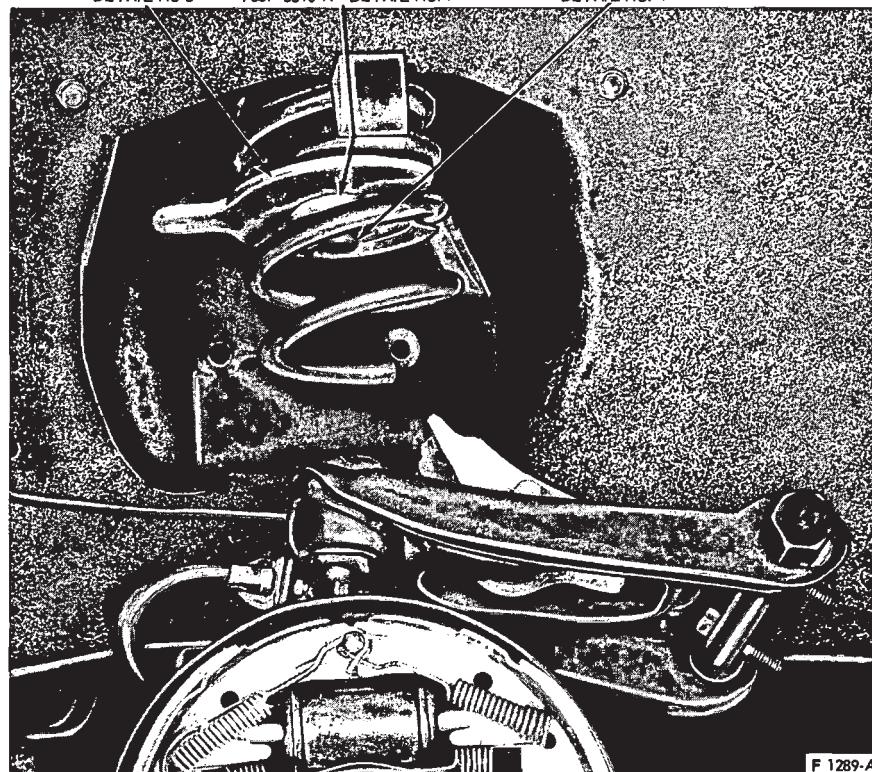


FIG. 12—Compressing Spring—Lower View—Montego, Falcon, Fairlane and Maverick

FRONT SUSPENSION LOWER ARM REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR,
THUNDERBIRD,
CONTINENTAL MARK III
AND LINCOLN
CONTINENTAL

Removal

1. Raise the front of the vehicle and position safety stands under both sides of the frame just back of the lower arms.

2. Remove the hub cap or wheel cover.

3. If equipped with drum type brakes, remove the wheel and tire and brake drum as an assembly. Remove the brake backing plate attaching bolts and remove the backing plate from the spindle. Wire the backing plate to the underbody to prevent damage to the brake hose.

4. If equipped with disc brakes, remove the wheel and tire from the hub. Remove 2 bolts and washers that attach the caliper and brake hose to the spindle. Remove the caliper from the rotor and wire it to the underbody to prevent damage to the brake hose. Then, remove the hub and rotor from the spindle.

5. Disconnect the lower end of the shock absorber, and push it up to the retracted position.

6. Disconnect the stabilizer bar link from the lower arm.

7. Remove the cotter pins from the upper and lower ball joint stud nuts.

8. Remove 2 bolts and nuts attaching the strut to the lower arm (Fig. 1).

9. Loosen the lower ball joint stud nut one or two turns. **Do not remove the nut from the stud at this time.**

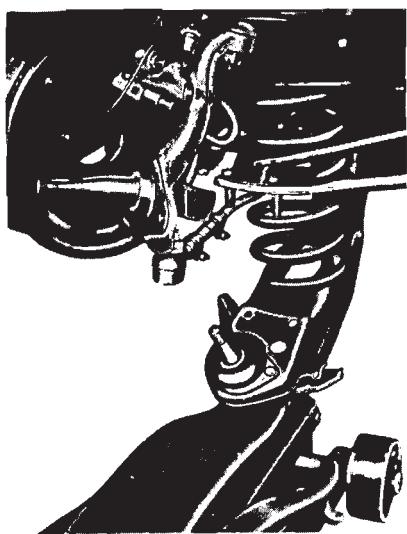
10. Install Tool T57P-3006-A between the upper and lower ball joint studs (Fig. 3). The tool should be seated firmly against the ends of both studs and not against the stud nuts.

11. With a wrench, turn the adapter screw until the tool places the stud under tension. Tap the spindle near the lower stud with a hammer to loosen the stud in the spindle. **Do not loosen the stud from the spindle with tool pressure only.**

12. Position a floor jack under the lower arm (Fig. 13) and remove the lower ball joint stud nut.

13. Lower the floor jack and remove the spring and insulator (Fig. 1).

14. Remove one nut and bolt at-



F1437-A

FIG. 13—Removing Front Spring—Lower Arm Replacement

taching the lower control arm to the No. 2 crossmember and remove the lower arm (Fig. 1).

Installation

1. Position the lower arm to the No. 2 crossmember and loosely install the attaching bolt and nut (Fig. 1).

2. Position the spring and insulator to the upper spring pad and lower arm. Using a floor jack, compress the spring and guide the lower ball joint stud into the spindle hole.

3. Install the ball joint stud attaching nut and torque to specification. Continue to tighten the nut until the cotter pin hole is in line with the nut slots. Install a cotter pin in the upper and lower ball joint studs.

4. Pull the shock absorber down and connect it to the lower arm.

5. Position the strut and bumper to the lower arm. Install the attaching bolts and nuts and torque to specification.

6. Torque the lower arm to No. 2 crossmember attaching bolt and nut to specifications.

7. Position the stabilizer bar link to the lower arm and install the attaching nuts.

8. If equipped with drum type brakes, position the brake backing plate to the spindle and install the attaching bolts. Torque the bolts to specification. Adjust the brakes as outlined in Group 2. Install the wheel,

tire, and drum to the spindle and adjust the wheel bearings as outlined in Part 11-02.

If equipped with disc brakes—Install the hub and rotor on the spindle. Position the caliper over the rotor and install the attaching bolts. Torque the bolts to specification. Install the wheel and tire on the wheel hub and adjust the wheel bearings as outlined in Part 11-02.

9. Install the hub cap or wheel cover.

10. Remove the safety stands and lower the vehicle.

11. If the lower arm is being replaced due to accidental damage, check the caster, camber, and toe-in and adjust as required (Part 14-01).

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG, MAVERICK

Removal

1. Position a support between the upper arm and side rail as shown in Figs. 4 and 5.

2. Raise the vehicle, position safety stands, and remove the wheel and tire.

3. Remove the stabilizer bar and link attaching nut (Fig. 14). Disconnect the bar from the link, and remove the link bolt.

4. Remove the strut to lower arm attaching nuts and bolts.

5. Remove the cotter pin from the nut on the lower ball joint stud, and loosen the nut one or two turns. **Do not remove the nut from the stud at this time.**

6. Straighten the cotter pin on the upper ball joint stud nut. Position the ball joint remover tool between the upper and lower ball joint studs in the reverse position from that shown in Fig. 6. The tool should seat firmly against the ends of both studs and not against the stud nuts.

7. Turn the tool with a wrench until the tool places the studs under considerable tension, and hit the spindle near the lower stud smartly with a hammer to break the stud loose in the spindle. **Do not loosen the stud in the spindle with tool pressure only.** If both arms are being removed, loosen the upper stud in the same manner as the lower stud.

8. Remove the nut from the lower ball joint stud, and lower the arm.

9. Remove the lower arm to underbody pivot bolt, nut and washer. Remove the lower arm.

Installation

1. Position the lower arm to the underbody bracket and install the pivot bolt, washer, and nut loosely.

2. Raise the lower arm, guide the lower ball joint stud into the spindle bore, and install the stud attaching nut loosely.

3. Install the stabilizer link bolt, washers, bushings and spacer. Connect the stabilizer bar to the link. Install the attaching nut and torque to specifications (Fig. 14).

4. Position the strut to the lower arm. Install the attaching bolts and nuts, and torque to specification.

5. Torque the lower ball joint stud nut to specification, continue to tighten the nut until the cotter pin hole and slots are aligned, and install a new cotter pin.

6. Torque the lower arm-to-underbody pivot bolt and nut to specification.

7. Remove the safety stands and lower the vehicle.

8. Remove the support from between the upper arm and frame.

9. Check and, if necessary, adjust caster, camber, and toe-in.

FRONT SUSPENSION UPPER ARM REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

Removal

1. Raise the front of the vehicle and position safety stands under both sides of the frame just back of the lower arm.

2. Remove the hub cap or wheel cover.

3. If equipped with drum type brakes—remove the wheel and tire and brake drum as an assembly (Part 11-02).

4. If equipped with disc brakes—remove the wheel and tire from the hub.

5. Remove the cotter pin from the upper ball joint stud nut.

6. Loosen the upper ball joint stud nut one or two turns. **Do not remove the nut from the stud at this time.**

7. Install tool T57P-3006-A between the upper and lower ball joint studs with the adapter screw on top (Fig. 3). The tool should be seated firmly against the ends of both studs and not against the nuts or lower stud

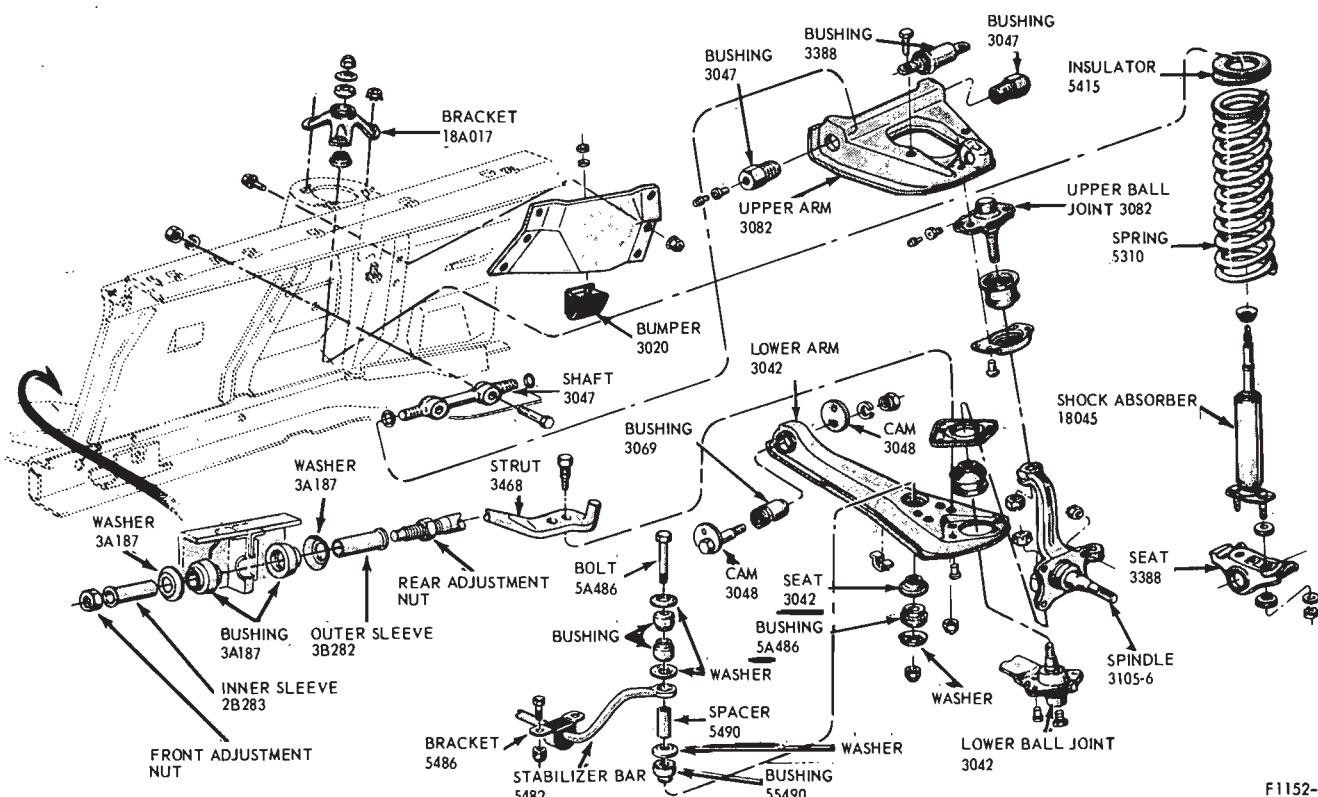


FIG. 14—Front Suspension Assembly

cotter pin.

8. With a wrench, turn the adapter screw until the tool places the stud under tension. Tap the spindle near the upper stud with a hammer to loosen the stud in the spindle. **Do not loosen the stud from the spindle with tool pressure only.**

9. Remove the tool from between the ball joint studs and place a floor jack under the lower arm.

10. Raise the floor jack to relieve the pressure from the upper ball joint stud nut and remove the nut.

11. Remove the upper arm inner shaft attaching bolts. Remove the upper arm and inner shaft as an assembly (Fig. 1).

12. Remove the bumper from the upper arm.

Installation

1. Position the bumper to the upper arm and install the nut and washer. Torque the nut to specifications.

2. Position the upper arm inner shaft to the frame side rail and install the 2 attaching bolts and washers snug.

3. Connect the upper ball joint stud to the spindle and install the attach-

ing nut. Torque the nut to specification and continue to tighten the nut until the cotter pin hole in the stud is in line with the nut slots. Then, install the cotter pin.

4. If equipped with drum type brakes, adjust the brakes as outlined in Part 12-02. Install the wheel, tire, and drum to the spindle and adjust the wheel bearings as outlined in Part 11-02.

5. If equipped with disc brakes, install the wheel and tire on the hub and adjust the wheel bearings as outlined in Part 11-02.

6. Install the hub cap or wheel cover.

7. Remove the safety stands and lower the front of the vehicle.

8. If the upper arm is being replaced due to accidental damage, check caster, camber, and toe-in and adjust as required (Part 14-01).

**COUGAR, FAIRLANE,
FALCON, MONTEGO,
MUSTANG, MAVERICK**

Removal

1. Raise the front of the vehicle, position safety stands under the frame, and lower the vehicle slightly.

2. Remove the wheel and tire.

3. Remove the shock absorber lower attaching nuts and washers.

4. Remove the shock absorber upper mounting bracket attaching nuts, and remove the shock absorber and bracket as an assembly (Fig. 15).

On all 8-cylinder vehicles, remove the air cleaner to obtain access for tool installation.

5. Install the spring compressor tool and compress the spring (Figs. 10, 11 and 12).

6. Position a safety stand under the lower arm.

7. Remove the cotter pin from the nut on the upper ball joint stud, and loosen the nut one or two turns. **Do not remove the nut from the stud at this time.**

8. Position the ball joint remover tool between the upper and lower ball joint studs as shown in Fig. 6. **The tool should seat firmly against the ends of both studs and not against the stud nuts.**

9. Turn the tool with a wrench until the tool places the studs under considerable tension; then, hit the spindle smartly near the upper stud with a hammer to break the stud loose in the spindle. **Do not loosen the stud in the spindle with tool pres-**

sure only. If both arms are being removed, loosen the lower stud in the same manner as the upper stud.

10. Remove the nut from the upper stud and lift the stud out of the spindle.

11. Remove the upper arm inner shaft attaching nuts from the engine compartment, and remove the upper arm.

12. Wipe off all loose dirt from the upper arm parts. **Do not wash the ball joint with a solvent.**

Installation

1. Position the upper arm on the underbody mounting bracket, and install the nuts and lock washers on the two inner shaft attaching bolts. **The specified keystone-type lock washers must be used.** Torque the nuts to specification.

2. Position the upper ball joint stud in the top of the wheel spindle, and install the stud nut. Torque the nut to specification, and continue to tighten it until the cotter pin hole and slots line up. Install a new cotter pin.

3. Release the coil spring, remove the tool, and install the front shock absorber and the wheel and tire.

FRONT WHEEL SPINDLE REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

Removal

1. Raise the vehicle until the front wheel clears the floor, and place a support under the frame.

2. Remove the hub cap or wheel cover.

3. If equipped with drum type brakes—remove the wheel and tire and brake drum as an assembly (Part 11-02). Remove the brake backing plate attaching bolts and remove the backing plate from the spindle. Wire the backing plate to the underbody to prevent damage to the brake hose.

4. If equipped with disc brakes—remove the wheel and tire from the hub. Remove 2 bolts and washers retaining the caliper and brake hose to the spindle. Remove the caliper from the rotor and wire it to the underbody to prevent damage to the brake hose. Then, remove the hub and rotor from the spindle (Part 11-02). Remove 3

bolts attaching the splash shield to the spindle and remove the splash shield.

5. Remove the steering connecting rod from the spindle arm with tool OTC462.

6. Remove the cotter pins from both ball joint stud nuts, and loosen the nuts one or two turns. **Do not remove the nuts from the studs at this time.**

7. Install the ball joint remover tool between the upper and lower ball joint studs (Fig. 3). **The tool should seat firmly against the ends of both studs and not against the stud nuts.**

8. Turn the tool nut with a wrench until the tool places the studs under tension, and, with a hammer, tap the spindle near the stud to loosen them in the spindle. **Do not loosen the studs in the spindle with tool pressure only.**

9. Position a floor jack under the lower control arm.

10. Remove the ball joint stud nuts and lower the lower arm enough to remove the spring and the spindle.

Installation

1. Position the spindle to the lower ball joint stud and install the attaching nut. Torque the nut to specification. Continue to tighten the nut until the cotter pin hole is in line with the slots in the nut. Then, install the cotter pin.

2. Position the spring and raise the lower arm and guide and upper ball joint stud into the spindle hole and install the attaching nut. Torque the nut to specification and install the cotter pin as outlined in the preceding step.

3. Remove the floor jack from under the lower arm.

4. Attach the steering connecting rod to the spindle and install the nut. Torque the nut to specification. Continue to tighten the nut until the cotter pin hole is in line with the slots in the nut. Then, install the cotter pin.

5. If equipped with drum type brakes—Position the brake backing plate to the spindle and install the attaching bolts. Torque the bolts to specification. Adjust the brakes as outlined in Part 12-02. Install the wheel, tire, and drum to the spindle and adjust the wheel bearings as outlined in Part 11-02).

6. If equipped with disc brakes, install the splash shield on the spindle and torque the attaching bolts to specification (at end of this Part). Install the hub and rotor on the spindle. Position the caliper over the rotor



F1490-B

FIG. 15—Removing or Installing Front Shock Absorber—Typical

and install the attaching bolts. Torque the bolts to specification (at end of this Part). Install the wheel and tire on the hub and adjust the wheel bearings as outlined in Part 11-02).

7. Install the hub cap or wheel cover. Then, remove the support stand and lower the vehicle.

8. If the spindle is being replaced due to accidental damage, check caster, camber, and toe-in (Part 14-02) and adjust as necessary.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG AND MAVERICK

Drum Brakes

Removal

1. Position a support between the upper arm and frame as shown in Figs. 4 and 5; then, raise the vehicle and position safety stands.

2. Remove the hub cap or wheel cover.

3. Remove the grease cap from the hub; then, remove the adjusting nut, washer, and outer bearing cone and roller assembly.

4. Pull the wheel, hub, and drum

assembly off the wheel spindle.

5. Remove the brake backing plate from the spindle. Support the plate to prevent damage to the brake hose.

6. Disconnect the spindle connecting rod end from the spindle arm using Tool 3290-C.

7. Remove the cotter pins from both ball joint stud nuts, and loosen the nuts one or two turns. **Do not remove the nuts from the studs at this time.**

8. Position the ball joint remover tool between the upper and lower ball joint studs (Fig. 6). **The tool should seat firmly against the ends of both studs and not against the stud nuts.**

9. Turn the tool with a wrench until the tool places the studs under considerable tension, and, with a hammer, hit the spindle smartly near the studs to break them loose in the spindle. **Do not loosen the studs in the spindle with tool pressure alone.**

10. Remove the stud nuts and remove the spindle from both studs.

Installation

1. Position the spindle on the lower ball joint stud and install the stud nut (Fig. 14).

2. Raise the lower suspension arm and guide the upper ball joint stud into the spindle. Install the stud nut.

3. Torque the upper stud nut and then the lower stud nut to specification. Continue to tighten both nuts until the cotter pin holes and slots line up. Install new cotter pins.

4. Connect the spindle connecting rod end to the spindle arm.

5. Install the brake backing plate on the spindle, and torque the bolts to specification.

6. Install the wheel and drum and adjust the wheel bearing (Part 11-02).

7. Remove the safety stands, and lower the vehicle.

8. Remove the support from between the upper arm and frame.

9. If the spindle is being replaced due to accidental damage, check and, if necessary, adjust caster, camber, and toe-in.

Disc Brakes

Removal

1. Remove the hub cap or wheel cover, and remove the wheel and tire from the hub.

2. Remove two bolts attaching the caliper to the spindle. Remove the

caliper from the rotor and wire it to the underbody to prevent damage to the brake hose.

3. Remove the grease cap from the hub, then, remove the adjusting nut, washer, and outer bearing cone and roller assembly.

4. Pull the hub and rotor assembly off the wheel spindle.

5. Remove the three caliper shield attaching bolts and remove the shield.

6. Disconnect the spindle connecting rod end from the spindle arm using Tool-3290-C.

7. Remove the cotter pins from both ball joint stud nuts, and loosen the nuts one or two turns. **Do not remove the nuts from the studs at this time.**

8. Position the ball joint remover tool between the upper and lower ball joint studs (Fig. 6). **The tool should seat firmly against the ends of both studs and not against the stud nuts.**

9. Turn the tool with a wrench until the tool places the studs under considerable tension, and, with a hammer, hit the spindle smartly near the studs to break them loose in the spindle. **Do not loosen the studs in the spindle with tool pressure alone.**

10. Position a floor jack under the lower suspension arm.

11. Remove the upper and lower ball joint stud nuts; lower the jack and remove the spindle.

Installation

1. Position the spindle on the lower ball joint stud and install the stud nut (Fig. 14). Torque the nut to specification and install the cotter pin.

2. Raise the lower suspension arm, and guide the upper ball joint stud into the spindle. Install the stud nut.

3. Torque the nut to specifications and install the cotter pin. Then, remove the floor jack.

4. Connect the spindle connecting rod end to the spindle arm and install the attaching nut. Torque the nut to specification and install the cotter pin.

5. Position the caliper splash shield to the spindle and install the attaching bolts and nuts. Torque the nuts and bolts to specification.

6. Install the hub and rotor on the spindle.

7. Position the caliper to the rotor and spindle and install the attaching bolts. Torque the bolts to specification and install the safety wire.

8. Install the wheel and tire on the hub and adjust the wheel bearing (Part 11-02).

9. Install the hub cap or wheel cover.

10. Before driving the vehicle, pump the brake pedal several times to obtain normal brake lining-to-rotor clearance and restore normal brake pedal travel.

FRONT SHOCK ABSORBER REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

1. Remove the nut, washer, and bushing from the shock absorber upper end.

2. Raise the vehicle on a hoist and install safety stands.

3. Remove 2 bolts attaching the shock absorber to the lower arm and remove the shock absorber.

4. Place a washer and bushing on the shock absorber top stud and position the shock absorber inside the front spring. Install the 2 lower attaching bolts and torque them to specifications.

5. Remove the safety stands and lower the vehicle.

6. Place a bushing and washer on the shock absorber top stud and install the attaching nut. Torque it to specification.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG AND MAVERICK

Removal

1. Raise the hood and remove 3 shock absorber upper mounting bracket-to-spring tower attaching nuts.

2. Raise the front of the vehicle and place safety stands under the lower arms.

3. Remove the shock absorber lower attaching nuts, washers and insulators.

4. Lift the shock absorber and upper bracket from the spring tower (Fig. 15) and remove the bracket from the shock absorber. Remove the insulators from the lower attaching studs.

Installation

1. Install the upper mounting bracket on the shock absorber and torque to specification. Install the insulators on the lower attaching studs.

2. Position the shock absorber and upper mounting bracket in the spring tower, making sure the shock absorber lower studs are in the pivot plate holes.

3. Install the 2 washers and attaching nuts on the shock absorber lower studs and torque to specification.

4. Install the 3 shock absorber

upper mounting bracket-to-spring tower attaching nuts and torque to specification. Then, remove the safety stands and lower the vehicle.

4 MAJOR REPAIR OPERATIONS

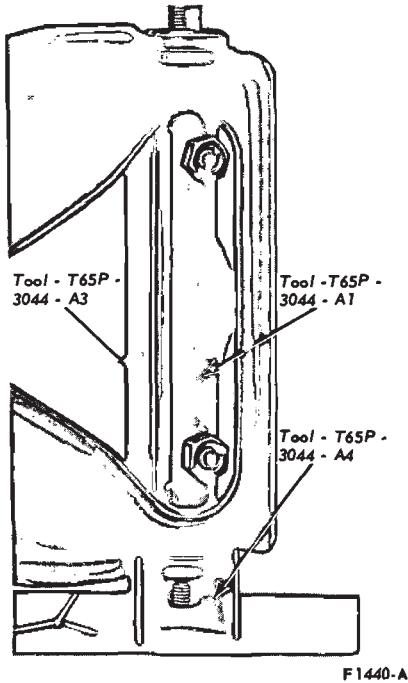


FIG. 16—Removing Upper Arm Bushings

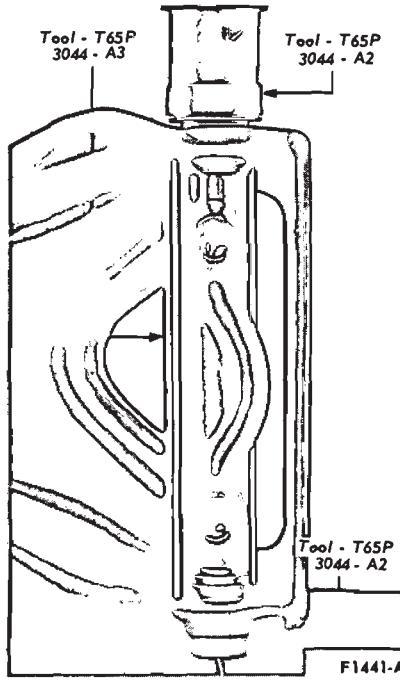


FIG. 17—Installing Upper Arm Shaft Bushings

FRONT SUSPENSION UPPER ARM BUSHINGS—ARM REMOVED

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

1. Remove the nuts and washers from both ends of the upper arm inner shaft.

2. Install Tool T65P-3044-A1 on the inner shaft and place Tool T65P-3044-A3 inside the upper arm around the inner shaft (Fig. 16).

3. Position the upper arm in an arbor press on Tool T65P-3044-A4 (Fig. 16), and press the lower bushing out of the upper arm.

4. Remove the bushing from the inner shaft; turn the assembly over and remove the bushing from the other side of the arm. It may be necessary to remove Tool T65P-3044-A1 from the inner shaft and remove the shaft from the arm to remove the bushing from the shaft. Then, install the tool on the shaft and remove the other bushing.

5. Position the shaft and bushings to the upper arm and install the bushings and inner shaft in the upper arm as shown in Fig. 17.

6. Install a washer and new nut on each end of the inner shaft.

5 SPECIFICATIONS

TORQUE LIMITS—FRONT SUSPENSION THUNDERBIRD, CONTINENTAL MARK III, LINCOLN CONTINENTAL

Description	Torque Ft-Lbs
Lower Arm to #2 Crossmember	60-90
Upper Arm to Frame	100-140
Upper Arm Bumper	15-25
Stabilizer Bar to Lower Arm	8-12
Ball Joint to Spindle (Upper and Lower)	① 60-90
Strut to Lower Arm	70-113
Stabilizer Bar to Mounting Bracket	8-12
Strut to Frame	① 60-90
Shock Absorber Upper Attachment	20-28
Shock Absorber to Lower Arm	8-15
Brake Splash Shield (Disc) to Spindle	9-14
Caliper to Spindle (Disc Brake)	
Upper Bolt	110-140
Lower Bolt	90-120

①Torque to minimum specification; then, tighten the nut to the nearest cotter pin slot and insert the cotter pin.

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TORQUE LIMITS—FRONT SUSPENSION FORD, MERCURY, METEOR

Description	Ft-Lbs	Description	Ft-Lbs
Lower Arm to No. 2 Crossmember	60-90	Brake Backing Plate to Spindle (Drum)	25-45
Upper Arm to Frame	100-140	Strut to Lower Arm	70-113
Upper Arm Bumper	15-25	Stabilizer Bar to Frame	18-27
Brake Backing Plate and Cylinder Assembly to Spindle	76-106	Strut to Frame	60-90①
Stabilizer Bar to Lower Arm	8-12	Shock Absorber Upper Attachment	20-28
Ball Joint to Spindle (Upper and Lower)	60-90①	Shock Absorber to Lower Arm	8-15
		Caliper to Spindle (Disc Brake)	110-140

①Torque to specification, then tighten the nut to the nearest cotter pin slot and insert the cotter pin.

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**TORQUE LIMITS—FRONT SUSPENSION
MONTEGO, FALCON, FAIRLANE, MUSTANG, COUGAR AND MAVERICK**

Description	Ft . Lbs		
	Falcon, Maverick	Montego, Fairlane	Mustang and Cougar
Shock Absorber Upper Attachment	10–15	20–28	10–15
Shock Absorber Upper Bracket to Body	22–34	15–25	20–30
Front Suspension Compression Bumper to Body	12–20	12–20	12–20
Brake Backing Plate to Spindle	20–35	9–14 (Disc) 25–35 (Drum)	9–14 (Disc) 20–35 (Drum)
Upper Arm and Inner Shaft to Body	75–100	75–100	75–100
Spring Seat to Upper Arm	25–40	25–40	25–40
Shock Absorber to Spring Seat	8–12	8–12	8–12
Ball Joint to Spindle (Upper and Lower)	60–90 ①	60–90 ①	60–90 ①
Wheel Bearing Adjusting Nut	17–25 ①	17–25 ①	17–25 ①
Strut to Lower Arm	70–105	70–105	70–105
Lower Arm to Underbody	75–100	75–100	75–100
Stabilizer Bar Mounting Bracket to Underbody	12–25	12–25	17–30
Strut to Underbody	60–80	60–80	60–80
Stabilizer Bar to Lower Arm	12–20	12–20	5–12
Caliper to Spindle (Disc Brake) - Upper		110–150	110–120
-Lower		55–75	55–75
Strut to Underbody Slotted Nut	50–70		50–70

①Torque the adjusting nut to 17–25 ft-lb. Locate nut lock on adjusting nut so castellations are aligned with cotter pin hole in spindle. Then back off adjusting nut and nut lock so the next castellation aligns with the cotter pin hole.

CF1547-A

SPECIAL SERVICE TOOLS

Tool No.	Description
T62F-3006-A	Ball Joint Press Adapter Screw
T57P-3006-B	Ball Joint Assembly Remover Press
T65P-3000-E, F	Alignment Spacers
T63P-5310-A	Front Coil Spring Assembly Remover and Replacer
T65P-3044-A	Upper Arm Bushing Overhaul Kit

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PART 14-03 Rear Suspension

COMPONENT INDEX Applies To Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
DRIVE SHAFT PINION ANGLE ADJUSTMENT		03-03	03-03	03-03	N/A	N/A	N/A	N/A	N/A	N/A	03-03	03-03	03-03
HOISTING INSTRUCTIONS	03-03												
REAR SHOCK ABSORBER Removal and Installation		03-05	03-05	03-05	03-05	03-06	03-06	03-06	03-06	03-05	03-05	03-05	03-05
REAR SPRING Removal and Installation		03-07	03-07	03-07	N/A	N/A	N/A	N/A	N/A	03-07	03-07	03-07	03-07
REAR SPRING AND/OR BUSHING Removal and Installation		N/A	N/A	N/A	03-08	03-08	03-08	03-08	03-08	N/A	N/A	N/A	N/A
REAR SUSPENSION Description	03-01												
REAR SUSPENSION LOWER ARM Removal and Installation		03-07	03-07	03-07	N/A	N/A	N/A	N/A	N/A	03-07	03-07	03-07	03-07
REAR SUSPENSION UPPER ARM Removal and Installation		03-08	03-08	03-08	N/A	N/A	N/A	N/A	N/A	03-08	03-08	03-08	03-08
TRACK BAR Removal and Installation		03-08	03-08	03-08	N/A	N/A	N/A	N/A	N/A	03-08	03-08	03-08	03-08

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

Each rear wheel, hub, and brake drum assembly is bolted to the rear axle shaft flange. The axle shaft assembly rotates in the rear axle housing.

The rear axle housing is suspended from the frame by a coil spring and shock absorber at each side of the vehicle and by three arms (one upper and two lower) which pivot in the frame members (Fig. 1).

Each coil spring is mounted between a lower seat, which is welded to the axle housing, and an upper seat which is integral with the frame.

The upper end of the rear shock

absorber is attached to the spring upper seat; the lower end is bolted to a bracket on the axle housing.

The upper suspension arm attaches to the right side of the axle housing through an eccentric pivot bolt and a bracket which is welded to the top of the housing. The forward end of the arm is connected by a pivot bolt to the frame crossmember.

Each lower suspension arm attaches to one end of the axle housing through a pivot bolt and a bracket which is welded to the underside of the housing. The forward end of the arm is connected by a pivot bolt to the frame side member.

A track bar is connected between the upper arm bracket on the axle housing and a mounting bracket on the left frame side rail.

COUGAR, FAIRLANE, FALCON, MONTEGO, MUSTANG, MAVERICK

Each rear wheel, hub and brake drum assembly is bolted to the rear axle shaft flange. The wheel and axle shaft assembly rotates in the rear axle housing. Two spring pads, integral with the axle housing, rest on two leaf spring assemblies. The axle housing is fastened to the center of the springs by spring clips (U-bolts), retainers, and nuts (Fig. 2). Each spring assembly is suspended from the underbody side rail by hanger and shackle assemblies at the front and rear. The integral mounting stud at the upper end of each shock absorber is attached through insulators to the crossmember or a bracket bolted to the crossmember. The lower end is mounted through insulators to the U-bolt plate or to a stud which is integral with the spring plate.

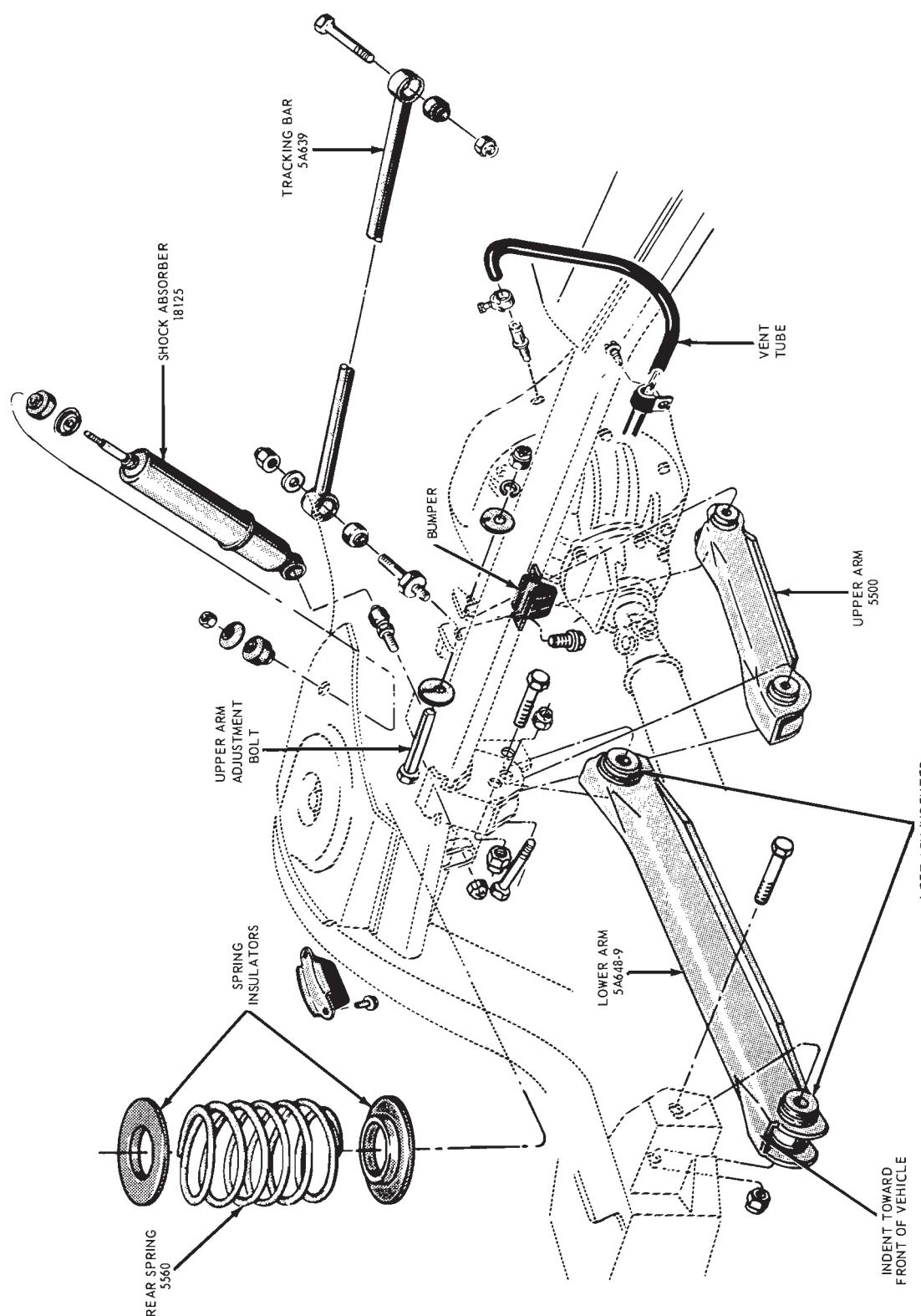


FIG. 1—Rear Suspension—Disassembled—Ford, Mercury, Thunderbird, Continental Mark III, Lincoln
Continental

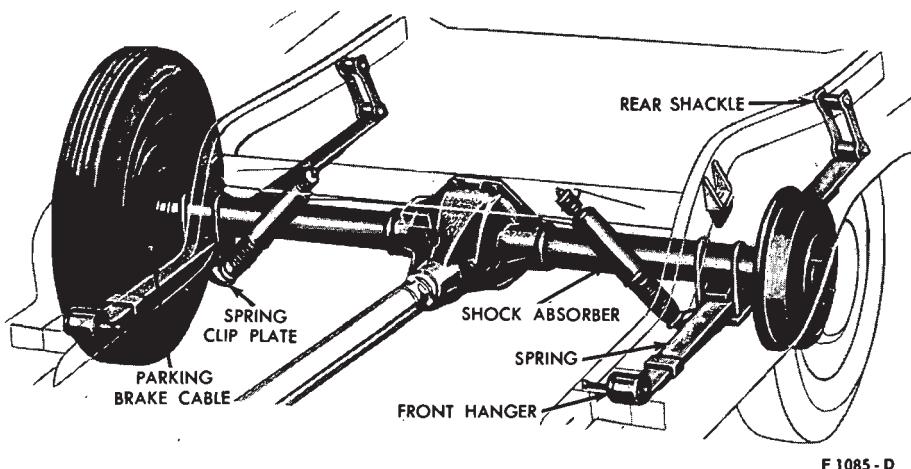


FIG. 2—Rear Suspension—Typical—Cougar, Fairlane, Falcon, Montego, Mustang, Maverick

2 IN-VEHICLE ADJUSTMENTS AND REPAIRS

HOISTING INSTRUCTIONS

Damage to steering linkage components and front suspension struts may occur if care is not exercised when positioning the hoist adapters of 2 post hoists prior to lifting the vehicle.

If a 2 post hoist is used to lift the vehicle, place the adapters under the lower arms or the No. 1 crossmember. Do not allow the adapters to contact the steering linkage. If the adapters are placed under the crossmember, a piece of wood (2 x 4 x 16 inches) should be placed on the hoist channel between the adapters. This will prevent the adapters from damaging the front suspension struts.

DRIVE SHAFT PINION ANGLE ADJUSTMENT

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III, LINCOLN CONTINENTAL

The pinion-drive shaft working angle must be checked and adjusted to specification whenever the rear axle has been removed. The checking and adjusting procedures must be done with the weight of the vehicle on the front and rear wheels. Loading or unloading of the vehicle is not re-

quired unless loads greater than design are encountered.

Checking Procedure

1. Use calipers or a scale to measure the distance between the top of the rear axle housing and a point on the frame rail adjacent to the axle bumper rear bolt head (see the sketches on Fig. 3). Average the measurements taken on the left and right sides.

2. At the bottom of the appropriate figure, find the rear suspension height corresponding to the height recorded in Step 1. Project upward to the curve line. Project horizontally to the left to find the number of pinion angle degrees for the recorded height.

3. Position the vee magnet (part of Tool T68P4602-A) on the drive shaft away from welds and balance weights.

4. From the left side of the vehicle, position the magnetized Tool T68P-4602-A on the vee magnet with the adjusting screw to the left (Fig. 4). Adjust the dial on the tool with the adjusting screw until the left-hand edge of the bubble is exactly on the zero line.

5. Now position the magnetized tool on a U-joint bearing cap as shown in Fig. 5 with the tool in the same relative position as it was on the

vee magnet (Fig. 4).

6. Read the position of the bubbles's left-hand edge on the scale to determine the drive shaft pinion angle. Compare to the degree specification recorded in Step 2. If adjustment is necessary, adjust to within plus or minus 30 minutes.

Adjustment

If the pinion angle is not within specifications, adjust the pinion angle as follows:

The upper arm-to-axle housing bolt and two eccentric washers form an adjusting cam mechanism (Fig. 6) which will tilt the axle housing to the required angle.

1. Loosen the upper arm pivot bolt nuts.

2. If the angle is less than specifications, rotate the adjusting cam forward and recheck the angle. If the angle is more than specification, rotate the adjusting cam rearward and recheck the angle.

3. When the axle housing is adjusted in such a way that the drive shaft angle reading is within specification, install new pivot bolt nuts and torque to specification.

4. Lower the vehicle and road test for proper axle operation.

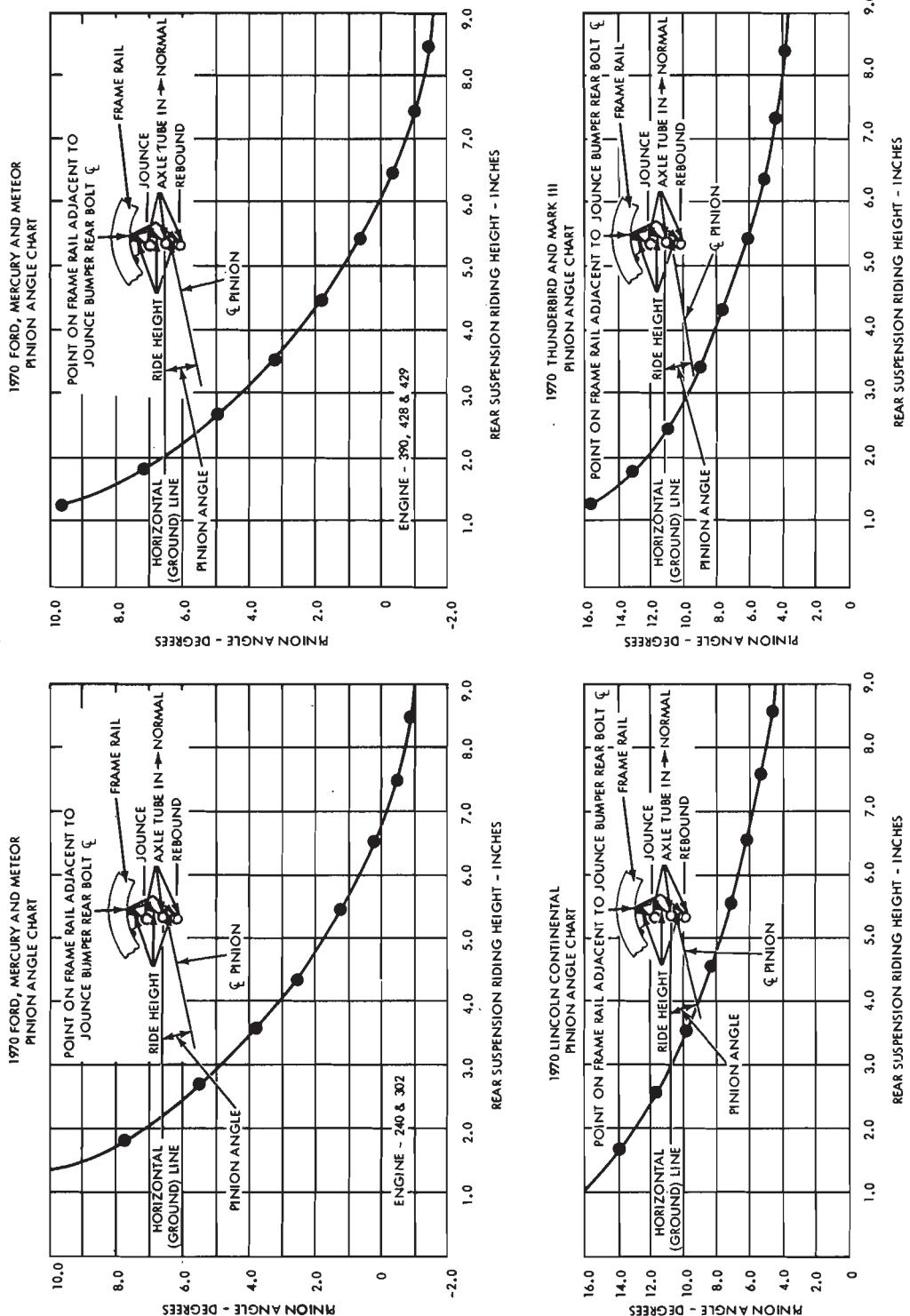


FIG. 3—Drive Shaft Pinion Angle Chart

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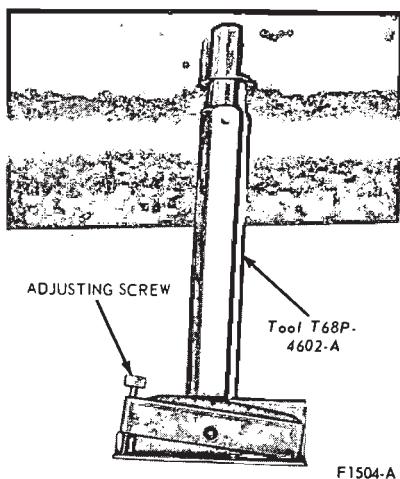


FIG. 4—Positioning Tool on
Vee Magnet

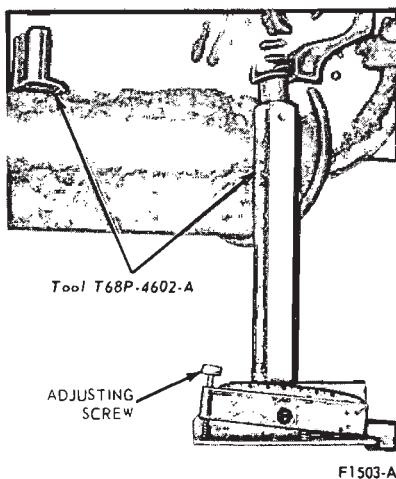


FIG. 5—Measuring Pinion Angle

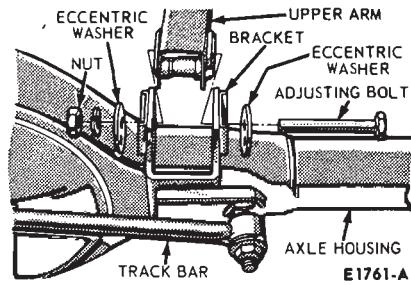


FIG. 6—Pinion Angle Adjustment

3 REMOVAL AND INSTALLATION

HOISTING INSTRUCTIONS

Damage to steering linkage components and front suspension struts may occur if care is not exercised when positioning the hoist adapters of 2 post hoists prior to lifting the vehicle.

If a 2 post hoist is used to lift the vehicle, place the adapters under the lower arms of the No. 1 crossmember. Do not allow the adapters to contact the steering linkage. If the adapters are placed under the crossmember, a piece of wood (2 x 4 x 16 inches) should be placed on the hoist channel between the adapters. This will prevent the adapters from damaging the front suspension struts.

REAR SHOCK ABSORBER REMOVAL AND INSTALLATION

FORD, MERCURY, METEOR, THUNDERBIRD, CONTINENTAL MARK III AND LINCOLN CONTINENTAL

1. Raise the vehicle on a hoist.
2. Remove the shock absorber attaching nut, washer and insulator from the upper stud at the upper side of the spring upper seat. Compress the shock absorber to clear the hole in the spring seat, and remove the inner insulator and washer from the upper attaching stud.
3. Remove the self-locking attach-

ing nut, and disconnect the shock absorber lower stud from the mounting bracket on the rear axle housing (Fig. 1).

4. Expel all air by performing step 3 On Vehicle Tests in Part 14-01.

5. Place the inner washer and insulator on the upper attaching stud, and position the shock absorber so that the upper attaching stud enters the hole in the spring upper seat. While holding the shock absorber in this position, install the outer insulator and washer and the nut on the upper stud from the upper side of the spring upper seat. Torque the nut to specifications.

6. Extend the shock absorber and locate the lower stud in the hole in mounting bracket on the rear axle housing. Install a new self-locking attaching nut and torque to specification.

MUSTANG AND COUGAR

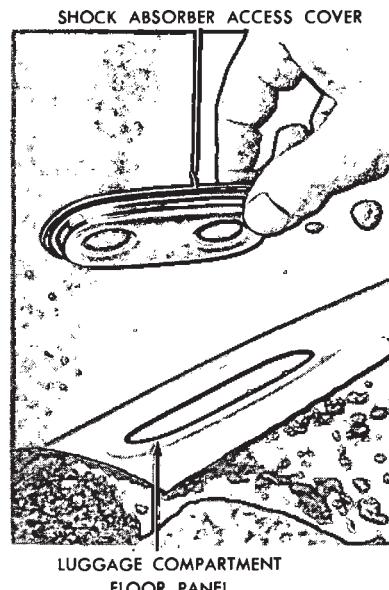
Removal

1. Disconnect the shock absorber from the spring plate (Fig. 9).

2. Remove the shock absorber access cover from the luggage compartment (Fig. 7). (On convertible models, remove the rear seat and seat back to reach the access cover.)

3. Remove the shock absorber upper attaching nut.

4. Compress the shock absorber



F 1489-A

FIG. 7—Rear Shock Absorber
Access Cover

and remove it from the vehicle. Remove the bushings and washers from the shock absorber studs.

Installation

1. Place the bushing and inner washer on the shock absorber stud.
2. Connect the upper stud to the

mounting, and install the bushing, outer washer, and new nut on the stud. Torque the nut to specification, and install the cover.

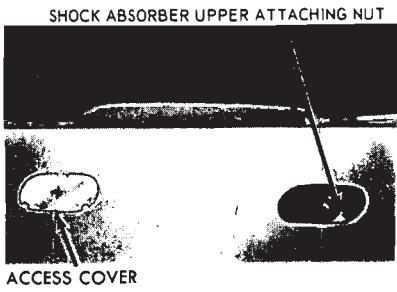


FIG. 8—Rear Shock Absorber
Upper Mounting

3. Connect the lower stud to the spring plate, and install the bushing, outer washer, and new nut on the stud. Be sure that spring plate is free of burrs. Tighten the nut to specification.

MONTEGO, FALCON, MAVERICK AND FAIRLANE (EXCEPT CONVERTIBLE)

Removal

1. Open the luggage compartment door, and remove the spare wheel and tire.

On the Ranchero, remove the attaching screws, and lift the forward half of the floor panel from the body; then, remove the access cover from the opening in the floor pan over the

shock absorber.

On Station Wagons, remove the access cover from the opening in the seat riser over the shock absorber.

2. Fold back the floor mat and remove the shock absorber access cover from the floor pan. Remove the nut, outer washer, and rubber bushing that attach the shock absorber to the upper mounting in the floor pan (Fig. 8).

3. Raise the vehicle and remove the attaching nut, outer washer and bushing from the shock absorber at the spring plate (Fig. 9). Compress the shock absorber and remove it from the vehicle.

4. If the shock absorber is serviceable and requires new bushings, remove the inner bushings and washers from the shock absorber studs.

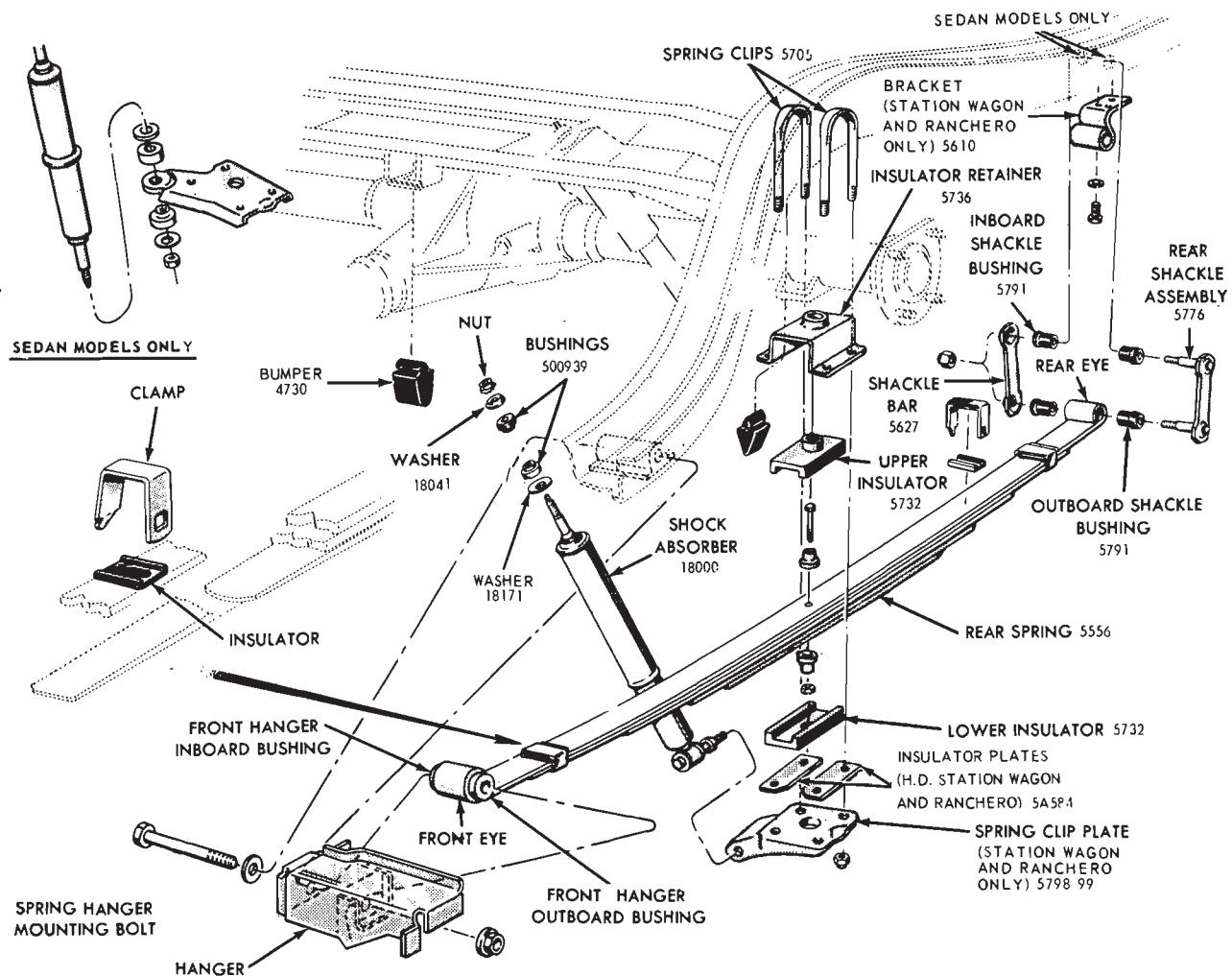


FIG. 9—Rear Spring and Shock Absorber—Typical

Installation

1. Place the inner washer and bushing on each shock absorber stud.

2. Expand the shock absorber and position it to the spring plate and to the mounting in the floor pan.

3. Connect the lower stud to the spring plate, and install the bushing, outer washer, and new nut on the stud (Fig. 9). Be sure the spring plate is free of burrs.

On the Ranchero, after tightening the nut to specification, install the forward half of the floor panel.

4. From the luggage compartment, install the bushing outer washer and new attaching nut to the upper mounting stud (Fig. 8). Torque to specification. On a station wagon, replace the floor bed panel (14 screws).

5. Place the spare wheel and tire in the luggage compartment, and secure it in the storage position.

MONTEGO AND FAIRLANE CONVERTIBLE**Removal**

1. Remove the rear seat cushion and seat back.

2. Partially raise the vehicle on a hoist. With an assistant under the vehicle holding the shock absorber, remove the nut from the top of the shock absorber.

3. Remove the lower shock absorber attaching nut and remove the

shock absorber.

Installation

1. Position the washers and bushings on the shock absorber and position the shock absorber to the lower attachment. Install the bushing, outer washer, and new attaching nut and torque the nut to specification (at the end of this Part).

2. Lower the vehicle and install the bushing, outer washer, and new attaching nut on the top of the shock absorber. Torque the nut to specification.

3. Install the rear seat back and seat cushion.

REAR SPRING REMOVAL AND INSTALLATION

**FORD, MERCURY, METEOR,
THUNDERBIRD,
CONTINENTAL MARK III
AND LINCOLN
CONTINENTAL**

Removal

1. Raise the vehicle on a hoist with the hoist under the rear axle housing. Place jack stands under the frame side rails.

2. Disconnect the lower studs of the two rear shock absorbers from the mounting brackets on axle housing.

3. Lower the hoist and axle housing until the coil springs are released

(Fig. 10).

4. Remove the springs and the insulators from the vehicle.

Installation

1. Position the spring in the upper and lower seats with an insulator between each seat and the spring.

2. Raise the hoist and axle housing with the spring in position and connect the lower studs of the rear shock absorbers to the mounting brackets on the axle housing. Install the attaching nuts, and torque to specifications.

3. Remove the jack stands and lower the vehicle.

REAR SUSPENSION LOWER ARM REMOVAL AND INSTALLATION

**FORD, MERCURY, METEOR,
THUNDERBIRD,
CONTINENTAL MARK III
AND LINCOLN
CONTINENTAL**

Removal

1. Raise the vehicle on a hoist and place jack stands under the frame side rails.

2. Remove the attaching nut and bolt from the frame track bar mounting bracket and disconnect the bar from the stud (Fig. 1).

3. Lower the axle enough to relieve spring pressure.

4. Support axle under differential pinion nose as well as under axle.

5. Remove the lower arm pivot bolt and nut from the axle bracket. Then, disengage the lower arm from the bracket.

6. Remove the pivot bolt and nut from the frame bracket and remove the lower arm from the vehicle.

Installation

The rear suspension lower arms are not interchangeable on Ford, Mercury, Meteor and Thunderbird vehicles. The lower arm for the left side can be identified by notches in the bushing flange (Fig. 1). The right arm does not have the notches.

1. Position the lower arm in the bracket on the frame side rail. Install a new pivot bolt and new nut (Fig. 11). Do not tighten the nut at this time.

2. Position the lower arm to the axle bracket and install a new bolt and new nut (Fig. 11). Do not tighten the nut at this time.

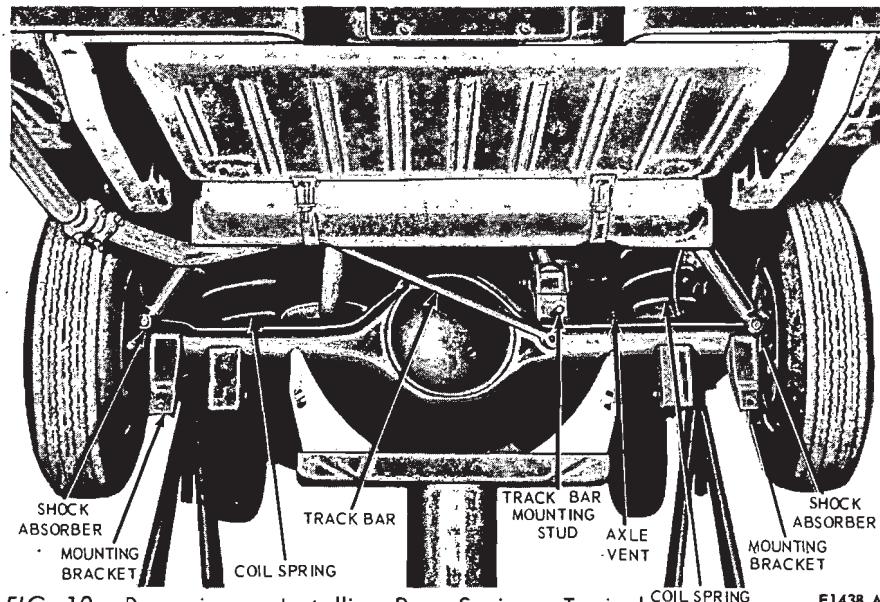


FIG. 10—Removing or Installing Rear Spring—Typical

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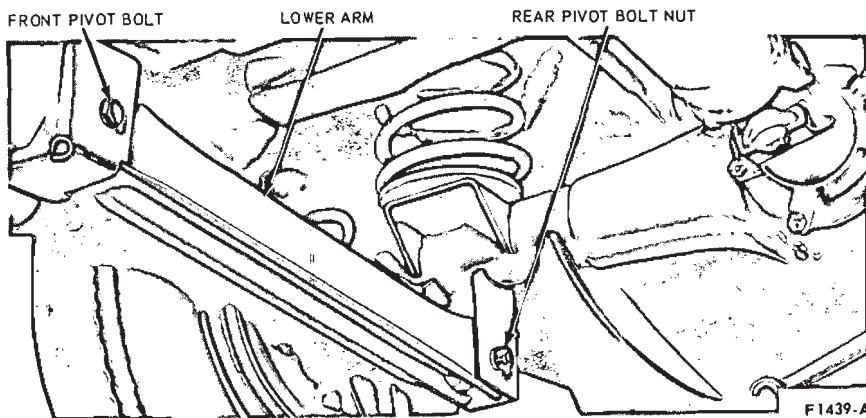


FIG. 11—Rear Suspension Lower Arm Installed

3. Raise the axle.
4. Install alignment spacers between the rear axle and frame (Fig. 3, Part 14-01). Then, torque the lower arm pivot bolts and nuts to specification.
5. Connect the track bar to the frame bracket with a new nut and bolt. Torque the nut to specification.
6. Remove the alignment spacers and jack stands and lower the vehicle.

REAR SUSPENSION—UPPER ARM REMOVAL AND INSTALLATION

**FORD, MERCURY, METEOR,
THUNDERBIRD,
CONTINENTAL MARK III
AND LINCOLN
CONTINENTAL**

Removal

1. Raise the vehicle and support the frame side rails with jack stands.
2. Support the rear axle, then disconnect the track bar from the frame bracket.
3. Lower the axle and support axle under differential pinion nose, as well as under axle.
4. Remove the nut, bolt and two washers that attach the upper arm to the axle housing. Disconnect the arm from the housing.
5. Remove the nut and bolt that secures the upper arm to the crossmember and remove the arm.

Installation

1. Hold the upper arm in place on the crossmember and install a new attaching bolt, a new lockwasher and a new nut. Do not tighten the nut at this time.

2. Secure the upper arm to the axle housing with a new attaching bolt, two washers and a new nut. Do not tighten the nut at this time.
3. Install alignment spacers between the rear axle housing and frame.
4. Connect the track bar to the frame bracket with a new nut and bolt. Torque the nut to specifications.
5. Torque the upper arm front nut to specification. Remove the alignment spacers and the jack stands.
6. Adjust the pinion angle and torque the rear nut to specification.
7. Lower the vehicle.

TRACK BAR REMOVAL AND INSTALLATION

**FORD, MERCURY, METEOR
AND LINCOLN
CONTINENTAL**

1. Raise the vehicle on an axle contact hoist.
2. Remove rubber cover at the axle attachment on the track bar.
3. Remove the nut and washer attaching the track bar to the upper arm bracket and disengage the track bar from the mounting stud (Fig. 10).
4. Remove the nut and bolt attaching the track bar to the frame side rail and remove the track bar.
5. Position the track bar to the frame side rail and install a new attaching bolt and new nut.
6. Position the track bar on the upper arm bracket mounting stud and install a new washer and a new attaching nut. Torque the track bar attaching bolt and nuts to specification. Lubricate the rubber cover with synthetic rubber lubricant and insert it over the end of the stud onto the washer. Then, lower the vehicle.

washer. Then, lower the vehicle.

THUNDERBIRD AND CONTINENTAL MARK III

1. Raise the vehicle on an axle contact hoist.
2. Remove the rubber cover at the axle attachment on the track bar.
3. Remove the nut and washer attaching the track bar to the upper arm bracket and disengage the track bar from the mounting stud (Fig. 10).
4. Remove the nut and cotter pin attaching the track bar to the frame side rail and remove the track bar.
5. If the frame bracket bushings are damaged, collapse the 0.030-inch ferrule and drive it out of the bushing assembly. Remove the bushings.
6. Install a new bushing and a new inner ferrule.
7. Compress the washer and bushing assembly to 2.16 inch and position the inner ferrule over the edge of the inner washer.
8. Position the track bar to the frame side rail and install a new attaching bolt and a new nut.
9. Position the track bar on the upper arm bracket mounting stud and install a new washer and a new attaching nut. Torque the track bar attaching bolt and nuts to specification. Lubricate the rubber cover with synthetic rubber lubricant and insert it over the end of the stud onto the washer. Then, lower the vehicle.

REAR SPRING AND/OR BUSHING REMOVAL AND INSTALLATION

**COUGAR, FAIRLANE,
FALCON, MONTEGO,
MUSTANG**

Removal

1. Raise the vehicle on a hoist and place supports beneath the underbody and under the axle.
2. Disconnect the lower end of the shock absorber from the spring plate and push the shock out of the way. Remove the supports from under the axle.
3. Remove the spring plate nuts from the U-bolts; then, remove the plate (Fig. 9). Raise the rear axle just enough to remove the weight from the spring.
4. Remove the two attaching nuts, and rear shackle bar, and the two shackle inner bushings.
5. Remove the rear shackle assembly and the two outer bushings.
6. Remove the front hanger bolt,

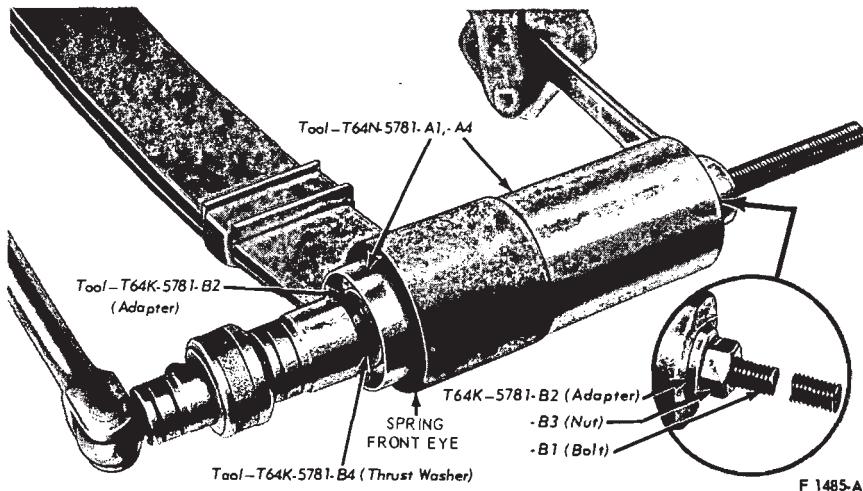


FIG. 12—Rear Spring Front Bushing Removal—Typical

tighten the tool bolt against the tool thrust washer, the adapter, and detail A1. This operation will force the bushing out of the spring eye into detail A4 of the tool as shown.

Installation

During rear suspension leaf spring assembly replacement in service, all used attaching components **must** be discarded and replaced with new components.

- Assemble the bushing and the special tool combination to the spring front eye as shown in Fig. 13.

- While holding the tool nut, tighten the tool bolt against the tool thrust washer, adapter, and detail A4 to force the bushing into the spring eye as shown.

- Position the spring under the rear axle and insert the shackle assembly into the rear hanger bracket and the rear eye of the spring.

- Install the shackle inner bushings, the shackle plate, and the lock-nuts. Tighten the locknuts finger-tight.

- Position the spring front eye in the front hanger, slip the washer on the front hanger bolt, and (from the inboard side) insert the bolt through the hanger and eye. Install the locknut on the hanger bolt and tighten finger-tight.

- Lower the rear axle until it rests on the spring. Position the spring plate on the U-bolts. Install the U-bolt nuts and torque to specification.

- Connect the lower end of the shock absorber to the spring plate using a new nut.

- Place safety stands under the rear axle, lower the vehicle until the spring is in the approximate curb load position, and then torque the front hanger stud locknut to specification.

- Torque the rear shackle locknuts to specification and close the hole in the inner rail with a body plug.

- Remove the safety stands and lower the vehicle.

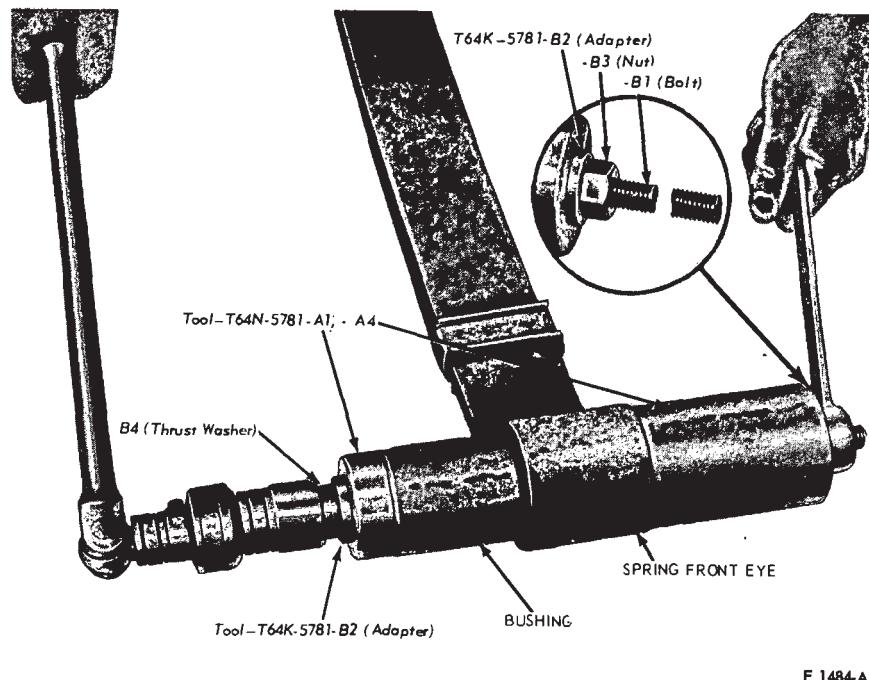


FIG. 13—Rear Spring Front Bushing Installation—Typical

nut, and washer from the eye at the forward end of the spring. Lift out the spring assembly.

- If the front bushing is being re-

placed, assemble the special tool combination to the bushing in the spring front eye as shown in Fig. 12.

- While holding the tool nut,

4 SPECIFICATIONS

TORQUE LIMITS-REAR SUSPENSION THUNDERBIRD, CONTINENTAL MARK III, LINCOLN CONTINENTAL

Description	Ft-Lbs
Shock Absorber to Frame (Upper Attachment)	15-25
Upper Arm to Axle (Front)	70-90
Track Bar to Axle Track Bar Stud	85-110
Track Bar Stud to Axle	100-130
Track Bar to Frame (Bolt Torque)	70-90
Wheel Lug Nut	70-115
Brake Backing Plate and Bearing Retainer to Axle	50-75
Shock Absorber to Axle (Lower Attachment)	50-85
Bumper Assembly to Frame	Self-Tapping
Lower Arm to Axle - Bolt	90-120
Lower Arm to Axle - Nut	70-90
Upper Arm to Frame - Bolt	90-120
Upper Arm to Frame - Nut	70-90
Lower Arm to Frame - Bolt	90-120
Lower Arm to Frame - Nut	70-90
Bumper Assembly to No. 4 Crossmember	Self-Tapping

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TORQUE LIMITS-REAR SUSPENSION FORD, MERCURY, METEOR

Description	Ft-Lbs
Shock Absorber to Frame (Upper Attachment)	15-25
Upper Arm to Axle Bracket (Nut)	90-100
Track Bar to Axle Track Bar Stud	70-90
Track Bar Stud to Axle	100-130
Track Bar to Frame (Bolt Torque)	70-90
Track Bar Stud to Axle Bracket (Nut)	90-120
Wheel Lug Nut	70-115
Brake Backing Plate and Bearing Retainer to Axle—All Cars except those with 240 or 302 CID Engines	50-75
Brake Backing Plate and Bearing Retainer to Axle—All Cars with 240 or 302 CID Engines	20-40
Shock Absorber to Axle (Lower Attachment)	50-85
Bumper Assembly to Frame	9-13
Lower Arm to Axle—Bolt	90-120
Lower Arm to Axle—Nut	70-90
Upper Arm to Frame—Bolt	90-120
Upper Arm to Frame—Nut	70-90
Lower Arm to Frame—Bolt	• 90-120
Lower Arm to Frame—Nut	70-90
Bumper Assembly to No. 4 Crossmember	9-13
Universal Joint U-Bolt Nut	10-15

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TORQUE LIMITS—REAR SUSPENSION
MONTEGO, FALCON, FAIRLANE, MUSTANG, COUGAR AND MAVERICK

Description	Montego, Fairlane	Mustang, Cougar	Falcon, Maverick
Spring Shackle Bars to Body and Spring	20–29	22–29	22–29
Shock Absorber to Upper Mounting Bracket	15–25	15–25	45–65
Shock Absorber to Spring Clip Plate	15–25 (45–65 Sta. Wgn.)	15–25	15–25
Spring to Axle U-Bolt Nut	35–50	35–50	35–50
Wheel Lug Nut 5-Lug Wheel	70–115	70–115	70–115
Spring to Spring Front Hanger - Bolt	80–110	80–110	80–110
Spring to Spring Front Hanger - Nut	70–100	70–95	70–95
Universal Joint U-Bolt Nut – Std. Trans.	10–15	10–15	10–15
Universal Joint U-Bolt Nut – Auto. Trans.	10–15	10–15	10–15

CF1551-A

SPECIAL SERVICE TOOLS

Tool No.	Description
T68P-4602-A	Pinion Angle Level Gauge
T64N-5781-A	Rear Spring Front Bushing Remover and Installer
T64K-5781-B	Rear Spring Bushing Adapter

CF1552-A

PART 14-04 Automatic Air Leveling—Ford, Mercury, Meteor

COMPONENT INDEX Applies Only To Models Indicated	Ford	Mercury	Meteor
AIR COMPRESSOR Disassembly and Overhaul	04-03	04-03	04-03
Removal and Installation	04-01	04-01	04-01
AIR CYLINDER Removal and Installation	04-02	04-02	04-02
DESCRIPTION	04-01	04-01	04-01
HEIGHT CONTROL VALVE Disassembly and Overhaul	04-04	04-04	04-04
Removal and Installation	04-01	04-01	04-01
A page number indicates that the item is for the vehicle(s) listed at the head of the column.			
N/A indicates that the item is not applicable to the vehicle(s) listed.			

1 DESCRIPTION

The automatic level control is an accessory item on the Ford, Mercury and Meteor vehicles (Fig. 1). This device is a supplement to the rear coil spring suspension, and will automatically

maintain the rear standing height of the vehicle at an approximate constant position compensating for varying loaded conditions. The system consists of a vacuum operated

compressor, control valve, air cylinders and the connecting lines and fittings. In the event of accidental air loss, the conventional coil springs will support the vehicle.

2 REMOVAL AND INSTALLATION

AIR COMPRESSOR

REMOVAL

1. Slip the vacuum line off the intake fitting on the side of the compressor (Fig. 2).

2. Disconnect the output line from the rear of compressor.

3. Remove the three compressor attaching nuts from the bracket. Lift the compressor from the mounting bracket.

INSTALLATION

1. Place the star washer on each insulator. Position the compressor on the mounting bracket and install and

torque the three attaching nuts to specifications.

2. Connect the vacuum line to the intake fitting at the side of the compression.

3. Start the engine and check the compressor output.

4. Connect the output line to the nylon fitting at the rear of the compressor (Fig. 2).

HEIGHT CONTROL VALVE

REMOVAL

1. Raise the vehicle on a hoist. It may be more convenient to support the rear of the frame with two jack stands and lower the axle to provide

greater accessibility to the valve.

2. Disconnect the compressor line from the intake port of the height control valve (Fig. 3).

3. Disconnect the air cylinder line from the rear of the height control valve.

4. Disconnect the link from the height control valve lever.

5. Remove the two control valve-to-mounting bracket attaching screws and remove the valve.

INSTALLATION

1. Position the height control valve to the mounting bracket and install the two attaching screws. Torque the screws to specification.

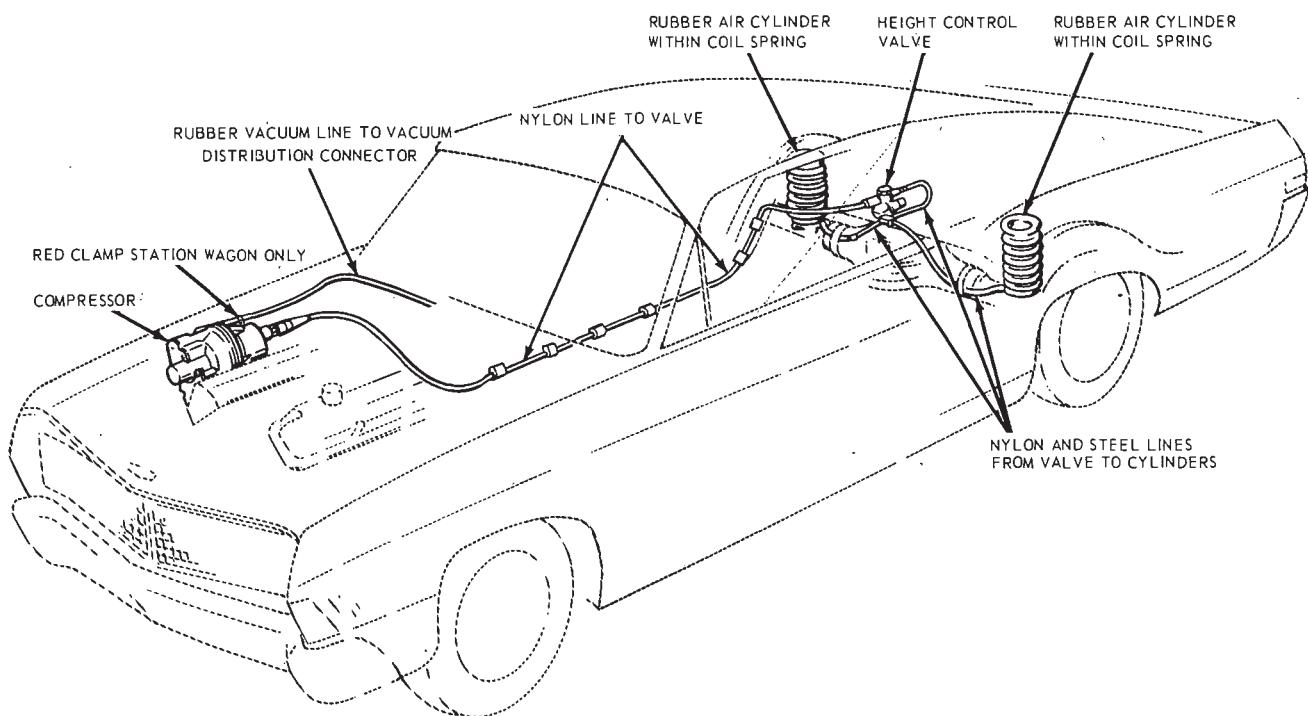


FIG. 1—Air Leveling System

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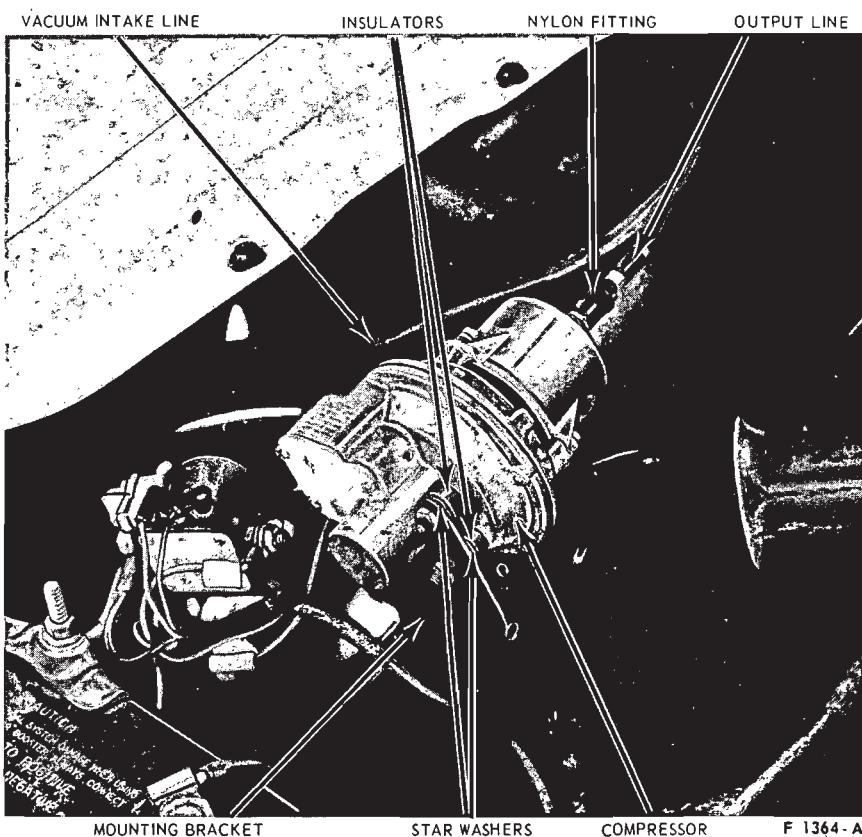


FIG. 2—Compressor Installed

F 1364-A

2. Connect the link to the height control valve lever.
3. Connect the compressor line to the height control valve.
4. Connect the air cylinder line to the height control valve.
5. Set the height control valve lever as required to obtain the correct trim height.
6. After obtaining the correct trim height, check the operation of the air leveling system.

AIR CYLINDER

REMOVAL

1. Raise the vehicle on a hoist with the hoist under the rear axle housing. Place jack stands under the frame side rails.
2. Disconnect the air cylinder line from the fitting on the lower end of the cylinder (Fig. 4).
3. Lower the hoist and axle housing until the rear shock is fully extended.
4. Squeeze all air from the bag and install the valve cap.
5. Remove the air cylinder from the rear spring.

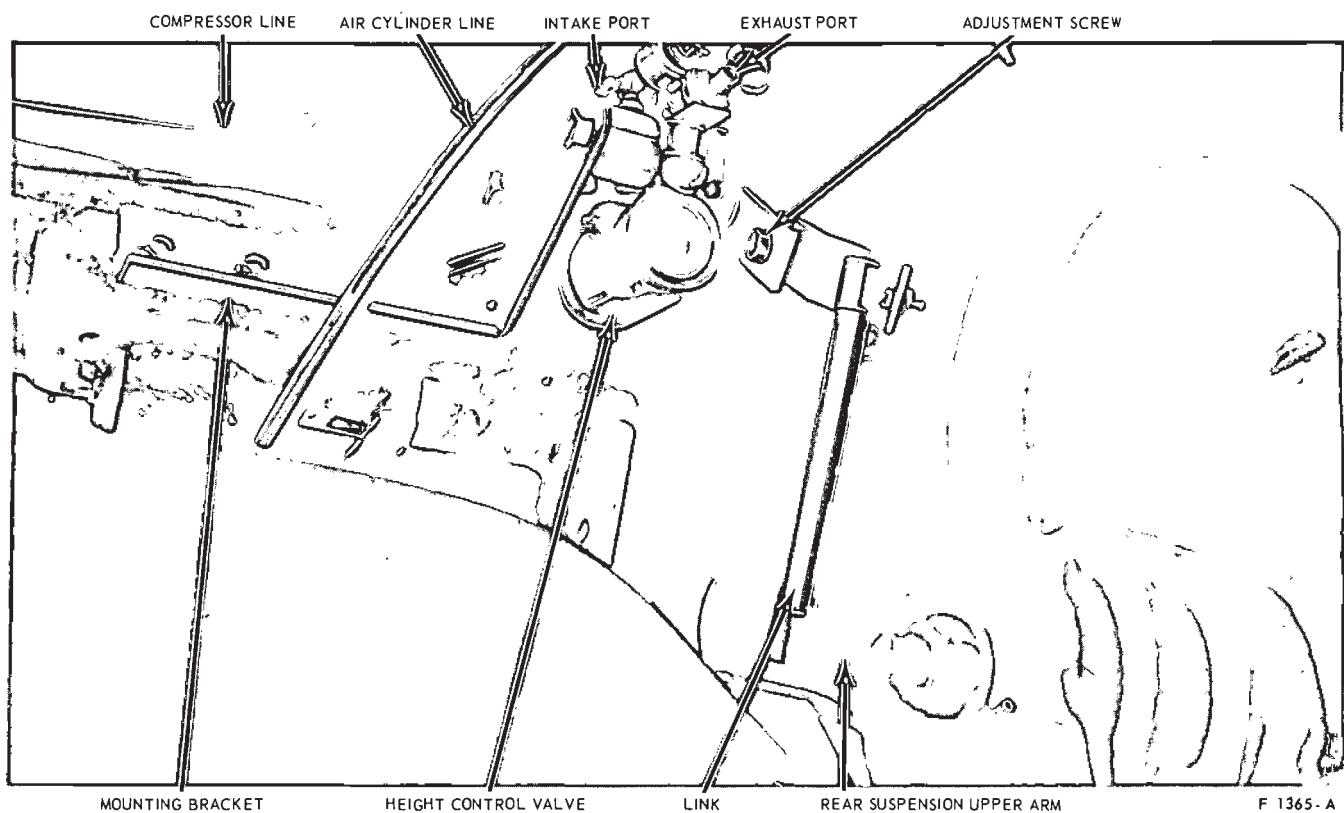


FIG. 3—Height Control Valve Installation

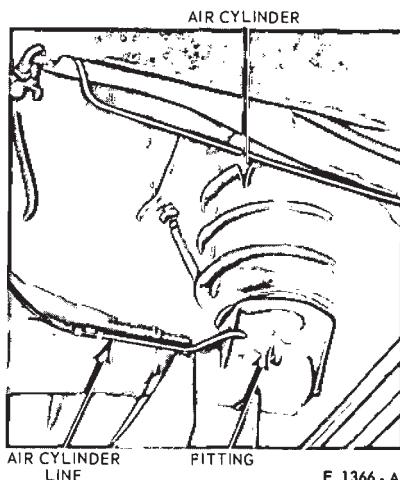


FIG. 4—Air Cylinder Installation

INSTALLATION

1. Make sure all the air is out of the bag and the valve cap is on.
2. Position the air cylinder in the spring with the inlet at the lower end.
3. Remove the valve cap and connect the air cylinder line to the cylinder.
4. Remove the jack stands and lower the vehicle.

3 MAJOR REPAIRS**AIR COMPRESSOR**

Compressor repair should be limited to the cleaning of the micro-bon filter.

REMOVAL

1. Remove the three cover filter attaching screws.

2. Remove the filter and cover gasket.
3. Wash the filter in solvent, blow it dry with compressed air working from the inside outward.

INSTALLATION

1. Position a new gasket and the cover on the compressor.
2. Install the three attaching screws.

HEIGHT CONTROL VALVE

Other than adjusting the trim height, no repairs should be made to

the height control valve.

1. Thoroughly clean the exterior of the height control valve.
2. Connect the test gauge and a 20 psi air pressure source to the intake adapter.
3. No air should escape if the lever is in the neutral position. If air escapes from the air cylinder port, replace the control valve.
4. Shut off the air pressure and

disconnect the pressure line from the air intake port.

5. Connect the pressure line to the air cylinder outlet port and open air pressure.
6. With the control lever in neutral position, no air should escape. If air escapes from the exhaust port, replace the control valve.
7. Shut off air pressure and remove the line from air cylinder port.

4 SPECIFICATIONS**AIR LEVELING SYSTEM TORQUE LIMITS**

Description	Ft.Lbs.
Compressor to Apron	10-13
Height Control Valve to Bracket	25-35
Height Control Valve Bracket to No.4 Crossmember	9-13

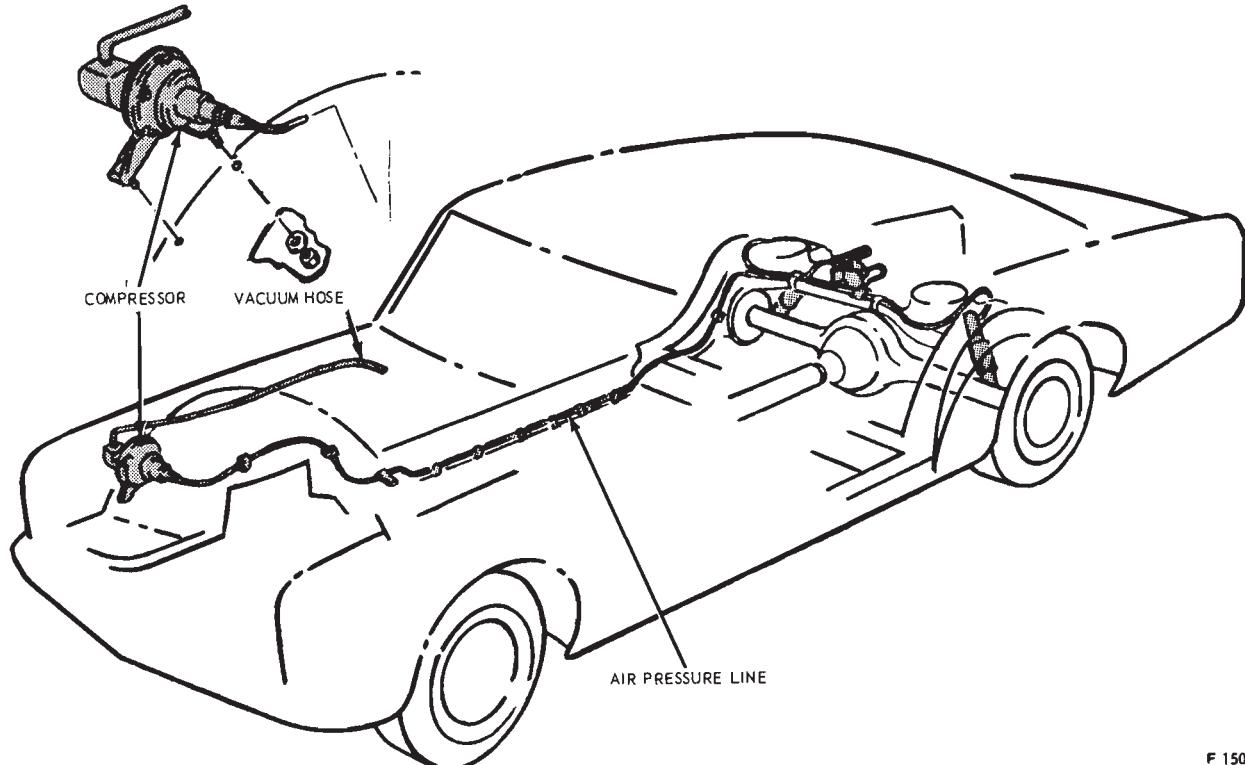
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PART 14-05 Automatic Air Leveling—Lincoln Continental

COMPONENT INDEX		Lincoln-Continental	COMPONENT INDEX		Lincoln-Continental
Applies To Lincoln Continental Only			Applies To Lincoln Continental Only		
AIR LEVELING SYSTEM			HEIGHT CONTROL VALVE		
Description	05-01		Leak Test	05-03	
Quick Check	05-03		Removal and Installation	05-04	
COMPRESSOR			Silicone Fluid Replacement	05-04	
Leak Test	05-03		LINES AND FITTINGS		
Output Test—On Vehicle	05-02		Leak Test	05-03	
Removal and Installation	05-04		SUPERLIFT SHOCK ABSORBER		
CONTROL VALVE			Leak Test	05-03	
Test-On Vehicle	05-03		Removal and Installation	05-04	
			TRIM ADJUSTMENT-ON VEHICLE	05-02	

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION

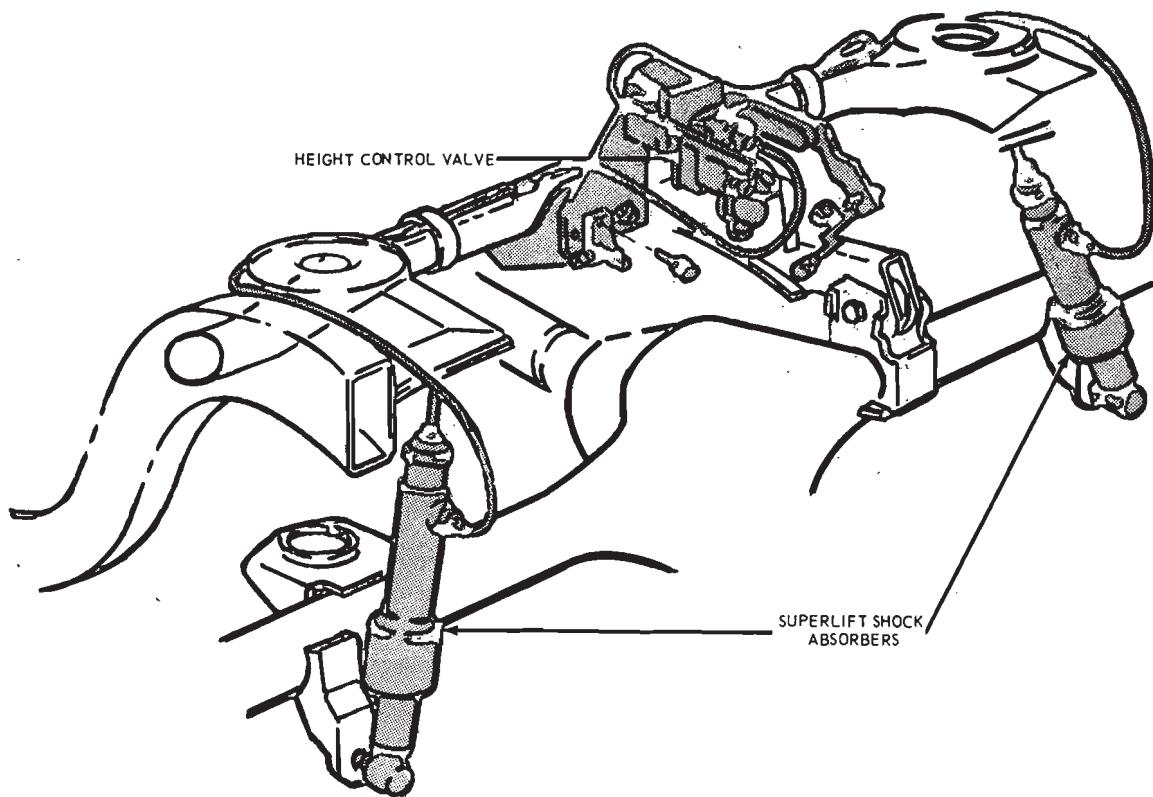


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FIG. 1—Automatic Air Leveling System

The rear suspension automatic leveling system (Fig. 1) is a pneumatic supplement to the rear suspension. The system is designed to function only after a load of approximately

three passengers is added to the vehicle and three passengers is added to the vehicle and will maintain that three passenger height even if more weight is added (up to the load capacity of the tires). The system consists of a vacuum operated compressor, height control valve and link, two superlift rear shock absorbers (Fig. 2) and flexible nylon air lines.



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FIG. 2—Height Control Valve and Superlift Installation

2 TESTING

COMPRESSOR OUTPUT TEST—ON VEHICLE

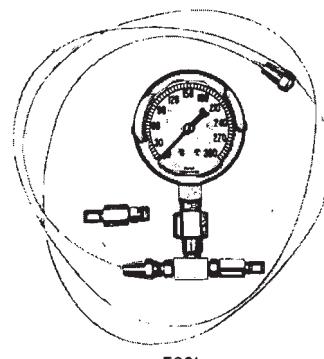
- With the climate control (if so equipped) off and the transmission selector lever in neutral, run the engine until the fast idle screw is off the fast idle cam. Turn off the ignition.
- Remove the high pressure line at the compressor and connect the test gauge. (Tool T68N-5A681-B)
- Start the engine to build pressure on the test gauge. The gauge (Fig. 3) should read 70 to 90 psi within a few seconds.
- Observe the test gauge for evidence of a compressor air leak.
- If the compressor is leaking, proceed to the compressor leak test described later in this Section. If it is not leaking, continue this test.
- If the compressor fails to cycle, check the vacuum line for obstructions and correct connections before removing the compressor.
- A satisfactory pressure build-up indicates the system problem is in the

height control valve area. The test gauge should be observed for a reasonable length of time for evidence of an air leak.

TRIM ADJUSTMENT—ON VEHICLE

The trim adjustment should be performed with a full fuel tank (or equivalent load at the rate of 6 pounds per gallon) and the equivalent load of 3 passengers (300 pounds in the front seat and 150 pounds in the rear seat).

- Raise the vehicle so the front and rear wheels are supported.
- Disconnect the superlift line from the height control valve and connect the test gauge to the disconnected end of the superlift line.
- Attach an air pressure source to the test gauge and maintain an 8 to 15 psi pressure in the superlifts.
- Jounce the vehicle to neutralize the rear suspension.
- Loosen the overtravel lever adjusting nut and lower the valve arm until air escapes from the exhaust



F 1398-A

FIG. 3—Air Pressure Gauge

port.

- Slowly move the valve arm up until the air bleed stops and tighten the adjusting nut.
- Remove the test gauge and air supply from the superlift line and reconnect the line to the control valve.

CONTROL VALVE TEST—ON VEHICLE

EXHAUST (SUPERLIFTS INFLATED)

1. Disconnect the overtravel lever from the link.
2. Hold the lever down in the exhaust position until the superlifts deflate or for a minimum of 18 seconds.
3. If the superlifts deflate, perform the intake check described in the next procedure.
4. If the superlifts do not deflate, remove the exhaust adaptor from the control valve and hold the lever down as in Step 2 above.
5. If the superlifts now deflate, replace the adaptor, O-ring and filter.
6. Replace the control valve if none of the above steps corrects the defective condition.

INTAKE (COMPRESSOR PRESSURE 90 PSI MINIMUM)

1. Disconnect the overtravel lever from the link.
2. Hold the lever up in the intake position until the superlifts inflate or for a minimum of 18 seconds.
3. If the superlifts inflate and hold, proceed to the time delay check following this procedure.
4. If the superlifts inflate and then leak down, the lines, fittings and superlifts must be checked for leaks. These procedures are described later in this section.
5. Check the intake and superlift screens and O-rings for damage and replace if necessary.
6. If superlifts still do not inflate, perform the height control valve leak test described later.

TIME DELAY CHECK

1. Disconnect the overtravel lever from the link.
2. Disconnect the lines at the superlift and intake ports.
3. Connect the test gauge (Fig. 3) to the intake valve port and apply air pressure (95 psi).
4. Move the overtravel lever approximately one inch down from the neutral position as measured from the end of the lever.
5. Quickly move the overtravel lever upward two inches. At the same time begin timing the number of seconds before air starts to escape from the superlift port. The delay should be from 4 to 18 seconds.
6. Repeat this check. This will

determine the air intake time delay. Now proceed to determine the air exhaust time delay.

7. Remove the test gauge and plug the intake port with the fill valve (female end).

8. Connect the test gauge to the superlift port and apply air pressure (95 psi).

9. Move the overtravel lever approximately one inch up from the neutral position as measured from the end of the lever.

10. Quickly move the overtravel lever downward two inches. At the same time begin timing the number of seconds before air begins to escape from the exhaust port. The delay should be from 4 to 18 seconds.

11. Repeat this check. If either delay is not within specifications, there has been either a loss of silicone fluid or the valve has lost its adjustment due to damage or wear.

COMPRESSOR LEAK TEST

1. With the engine at idle and the test gauge (Fig. 3) attached to the compressor, apply leak detector fluid at all connections and at the diaphragm between the first and second stage housings. The tightening of housing through-bolts may correct a diaphragm leak.

2. Apply leak detector fluid at the test gauge connections.

3. Correct any leak by either tightening screws and/or connections or replacing parts.

4. If the compressor passes this test, yet fails the output test, the compressor must be replaced.

HEIGHT CONTROL VALVE LEAK TEST

1. Remove the height control valve as described in the Removal and Installation Section.

2. Clean the exterior of the valve thoroughly.

3. Connect the test gauge and an air pressure source to the intake adaptor and apply the air pressure (80-110 psi).

4. Submerge the unit in water. No air should escape if the overtravel lever is in the neutral position. If bubbles escape from the superlift port, replace the control valve.

5. Shut off the air pressure and detach the test gauge from the air intake port. Plug the intake port with the fill valve (female end).

6. Connect the test gauge to the superlift port and apply air pressure.

7. With the unit again submerged and the overtravel lever in the neutral position, no air should escape. If bubbles escape from the exhaust port, replace the control valve.

8. If air escapes around the edge of the cover plate, replace the gasket.

9. After removing the unit from the water, actuate the overtravel lever to expel any water.

10. Shut off the air pressure, remove the line from the superlift port and install the control valve as described in the Removal and Installation Section.

LINES AND FITTINGS LEAK TEST

1. Disconnect the overtravel lever from the link.

2. Start the engine and let it idle.

3. Hold the lever up in the intake position for maximum superlift inflation and release after allowing 4 minutes to build up pressure.

4. Leak check all connections with a soap and water or leak detector solution.

SUPERLIFTS LEAK TEST

1. Remove the superlift shock absorbers as described in the Removal and Installation Section.

2. Inflate the superlifts individually to 50-60 psi utilizing fill valves. Submerge them in water and observe for air leaks. Replace leaking superlifts.

3. Install the superlifts as described in the Removal and Installation Section.

QUICK CHECK—AUTOMATIC AIR LEVELING SYSTEM

1. Record the rear trim height with the vehicle empty. Measure from the center of the rear bumper to the ground. Be sure the fuel tank is full or add the equivalent in load at the rate of 6 pounds per gallon.

2. Add weight equivalent to a 3 passenger load. Record the rear trim height again.

3. Start the engine and add as much additional weight as desired (up to the load capacity of the tires). In approximately 4 minutes, the rear trim height should read $\pm 1/2$ inch of that recorded in Step 2.

4. Remove the weight added in Steps 2 and 3. After 4 to 18 seconds the vehicle should begin to settle. Final unloaded position should be approximately $\pm 1/2$ inch of original measurement recorded in Step 1.

3 IN-VEHICLE ADJUSTMENTS AND REPAIRS

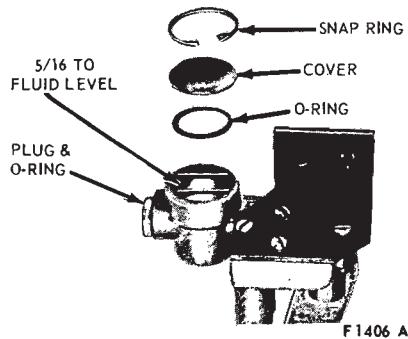


FIG. 4—Replacing Silicone Fluid

SILICONE FLUID REPLACEMENT

If the height control valve time delay does not fall within Specification, the silicone fluid must be replaced. Then repeat the time delay test. If delay is still not within specifi-

cations, replace the height control valve.

1. Remove the control valve and clean the exterior of the valve thoroughly.

2. Position the valve with the delay plug on top. Remove the delay plug and drain the silicone fluid from the chamber. Remove the O-ring from the chamber (Fig. 4), and discard the O-ring.

3. Remove the cover plate retaining ring using snap ring pliers. Remove the delay cover from the valve body. Remove the O-ring from the chamber, and discard the O-ring.

4. Place a new O-ring over the delay plug and install the plug. Torque the plug to 20-30 in-lbs.

5. Pour silicone fluid into the delay piston chamber until the fluid level is 5/16 inch below the top edge of the

body. Add or remove fluid with an eye dropper until the proper fluid level is reached.

6. Hold the control valve body in a vise with the delay chamber elevated slightly. Carefully operate the lever to purge trapped air from the fluid.

7. Place a new O-ring in the groove around the delay piston bore. Install the cover and secure it with a snap ring using snap ring pliers.

8. Place the control valve vertically in a vise with the delay chamber down. Move the overtravel lever up and down for one minute to vent air from the delay piston pin chamber. Perform a time delay check off the vehicle. If the delay is not within 4-18 seconds, recheck the fluid level in the delay chamber. If the level is within specifications, replace the valve.

9. Install the height control valve.

4 REMOVAL AND INSTALLATION

COMPRESSOR

REMOVAL

1. Disconnect the vacuum hose and the high pressure line from the compressor (Fig. 1).

2. Remove the three nuts securing the compressor and bracket to the right fender apron; then, remove the compressor and bracket assembly.

3. Remove the two nuts securing the compressor to the mounting bracket.

INSTALLATION

1. Attach the mounting bracket to the insulators and studs on the compressor with the two nuts.

2. Install the compressor and bracket assembly in place on the right fender apron using the three flat washers and the three 5/16-18 nuts.

3. Connect the vacuum hose and the air pressure line to the fittings on the compressor.

HEIGHT CONTROL VALVE

REMOVAL

1. Exhaust all air from the system.

2. Disconnect the two air lines (Fig. 5) from the height control valve intake and superlift ports.

3. Disconnect the link from the overtravel lever by removing one nut and lockwasher.

4. Remove the one screw securing the axle vent hose retainer to the bracket. Leave the retainer and hose hang loose.

5. Remove the two screws securing the height control valve and bracket to the number four crossmember and remove the valve and bracket.

INSTALLATION

1. If installing a new height control valve, transfer the bracket from the old valve to the new one.

2. Position the valve and bracket to the number four crossmember and install the two attaching screws. The time delay mechanism must be down.

3. Position the axle vent hose retainer to the valve bracket and install the attaching screw.

4. Secure the link to the overtravel lever with the one nut and lockwasher.

5. Connect the two air lines at the valve intake and superlift ports.

6. Inflate the system to maximum pressure.

7. Check the operation of the height control valve link toggle by supporting the rear of the vehicle on stands and lowering the axle to full rebound with shock absorbers connected.

SUPERLIFT SHOCK ABSORBER

REMOVAL

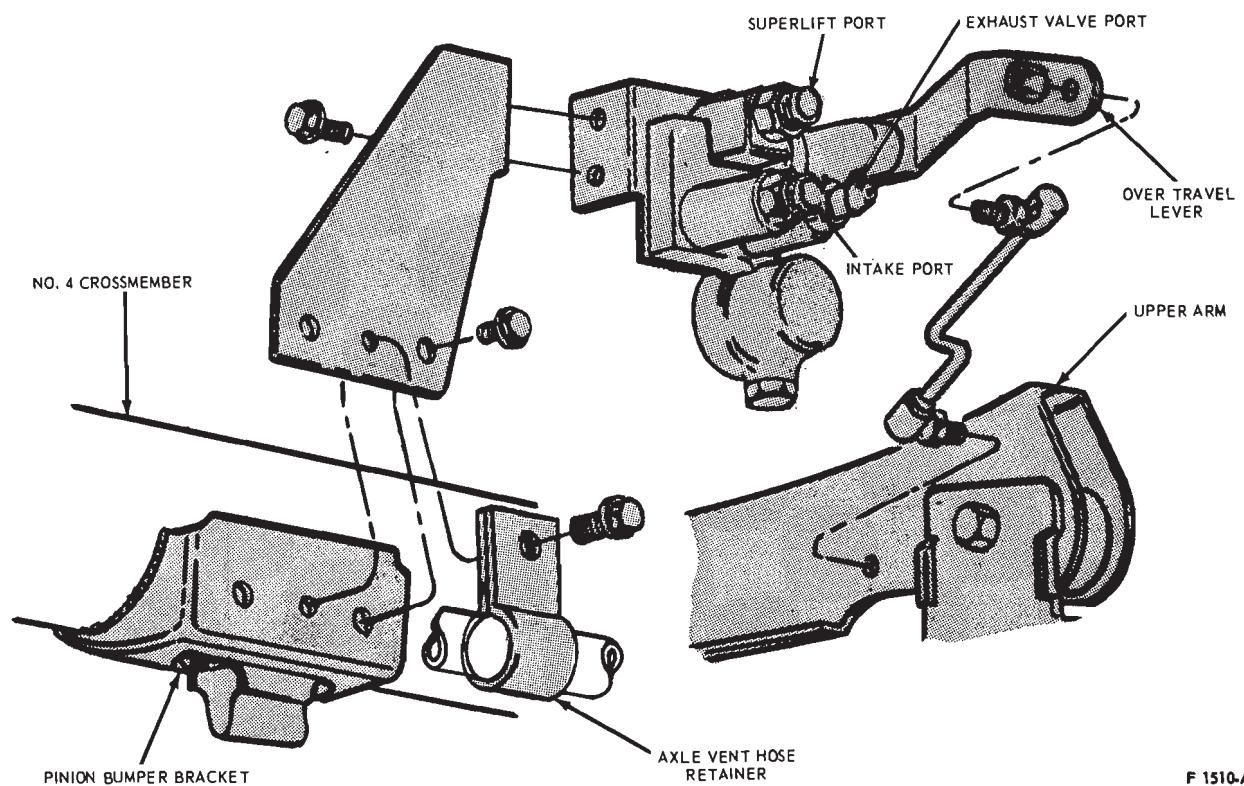
1. Raise the vehicle and place jack stands under the axle to compress the superlift.

2. Disconnect the lines at each superlift to release the air from the system.

3. Remove the shock absorber attaching nut, washer and insulator from the upper stud at the top side of the spring upper seat.

4. With the shock absorber compressed, clear the hole in the spring seat and remove the inner insulator and washer from the upper attaching stud.

5. Remove the self-locking attaching nut and disconnect the shock absorber lower stud from the mounting bracket on the rear axle housing.



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FIG. 5—Height Control Valve Installation

INSTALLATION

1. Place the inner washer and insulator on the upper attaching stud and position the shock absorber so the upper attaching stud enters the

hole in the spring upper seat. While holding the shock absorber in this position, install the outer insulator, washer and nut on the upper stud from the top side of the spring upper seat. Torque to specification.

2. Extend the shock absorber and locate the lower stud in the hole in the rear axle housing mounting bracket. Install a new self-locking attaching nut and torque to specification.